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A Policy for

MINERAL

AGGREGATE

RESOURCE

MANAGEMENT

in Ontario



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**A POLICY FOR
MINERAL AGGREGATE RESOURCE MANAGEMENT
IN ONTARIO**



A POLICY FOR MINERAL AGGREGATE RESOURCE MANAGEMENT IN ONTARIO

Report of the
ONTARIO MINERAL AGGREGATE WORKING PARTY

to

The Honourable Leo Bernier, Minister of Natural Resources

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REPORT OF THE
ONTARIO MINERAL AGGREGATE WORKING PARTY

To The Honourable Leo Bernier

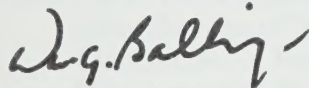
Minister of Natural Resources

Sir:

We, the members of the Ontario Mineral Aggregate Working Party, were appointed to recommend an effective and broadly acceptable mineral aggregate resource management policy for the Province of Ontario. We take pleasure in submitting to you our unanimous report.



George A. Jewett, Chairman



William Ballinger



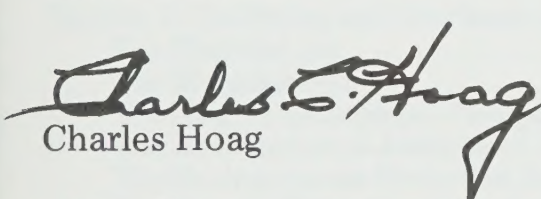
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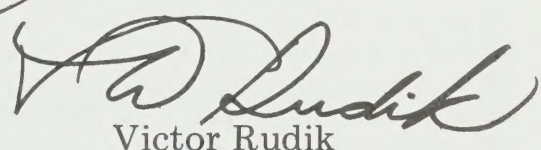
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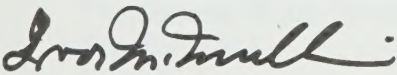
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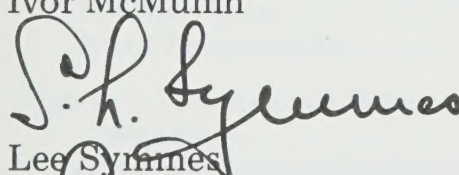
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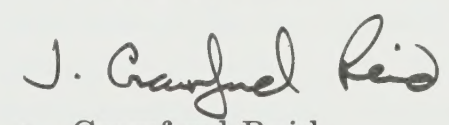
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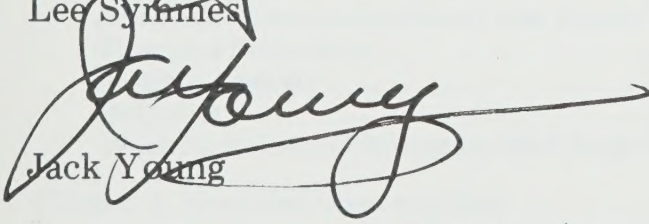
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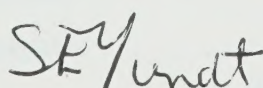
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Sherry Yundt, Executive Secretary

December, 1976

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A POLICY FOR
MINERAL AGGREGATE RESOURCE MANAGEMENT
IN ONTARIO

INTRODUCTION

The Ontario Mineral Aggregate Working Party was appointed by the Ontario Government in December 1975 to examine the operations of the industry and the concerns of the municipalities, and to suggest ways and means by which both local concerns and provincial objectives could be resolved.

In our deliberations we have studied examples of the major problems concerning aggregate operations in Ontario by examining case histories and by travelling to view conditions in the field. We have travelled to the major aggregate producing areas and have met with many concerned individuals and groups.

As a result of our work, we have reached the following broad conclusions:

1. *That problems of the aggregate industry are primarily local.*
2. *That while there is a general acceptance within the Province that aggregate extraction is necessary, there is also a very real concern by the citizens involved to see that their interests are protected.*
3. *That there is concern that consistency be established in the administration of the legislation, in enforcement, and in ensuring that demand is met equitably from the available sources within the Province.*
4. *That the Government has lacked credibility in performance to date as a result of*
 - (i) a failure of enforcement*
 - (ii) weaknesses in the Act*
 - (iii) little evidence of rehabilitation achieved to date.*

In drafting our report we have addressed ourselves to many other problems. Most specifically we have spent much time and effort in identifying specific ways in which we think an effective and acceptable policy can be administered within the general structure of government as it exists in Ontario today.

It is the opinion of the Working Party that if the recommendations suggested in the following report are followed, then local interests can be protected, and provincial objectives achieved at the same time.

The need for a provincial policy to manage the resources wisely and to regulate the aggregate industry has been evident in Ontario for many years, and the

present Pits and Quarries Control Act, introduced in 1971 was the first effort to formulate such a policy.

The present act and regulations follow closely many of the recommendations of the Mineral Resources Committee appointed by The Minister of Mines in January, 1969. This Committee was made up of representatives from directly concerned government departments and representatives of the extractive industry.

The Committee report produced in September, 1969 was published and distributed for general study and discussion. The fact that there was no representation on the Committee from the municipal level was a significant and major omission and from the beginning the Committee report proved unacceptable to many municipalities. A supplementary Committee report produced in 1970 addressed many of the municipal concerns but the lack of direct municipal input was still an irritant to the municipalities.

As a result a series of conferences were held in eight Ontario cities in May 1970. These conferences confirmed the need for provincial legislation but suggested that there was a need for more municipal involvement in the process, for more data, and for greater protection for sensitive areas.

Three more steps were taken in June of 1970.

First was the commissioning of a study on the economic feasibility of transporting aggregates to the Toronto area from rural parts of the Province by rail. This study was not particularly encouraging mostly because of the lack of known deposits near rail lines, coupled with high freight rates.

A second step was to speed up the mineral resource mapping of southern Ontario in accordance with a recommendation made by the Committee.

The third step was the passing of Bill 79, an *Act to Provide for the Preservation of the Niagara Escarpment and its Vicinity*. This was introduced as interim legislation to protect the escarpment area pending passage of Province-wide pit and quarry legislation.

The present Pits and Quarries Control Act was proclaimed on November 3, 1971. The intent of the Act was to provide rules and regulations that would accelerate rehabilitation and minimize the environmental impact of pit and quarry operations while still providing for the aggregate requirements of the Province to be met within the Province.

However today, more than five years later, the situation is little improved. We have in Ontario a confrontation situation between the extractive industry and the residents of the extractive areas. We have no assurance that resources will be available for the future. We still face, perhaps unnecessarily, escalating environmental and product costs.

Against this background, the Ontario Mineral Aggregate Working Party was appointed to investigate, report on, and recommend a more effective and broadly acceptable Mineral Aggregate Resource Management Policy for the Province of Ontario.

We have observed, after reviewing the report of the earlier Mineral Resources Committee, the Act, the evidence of our investigations, and the many representations we have received, that there is one basic reason for the Act not having accomplished its intended purpose — both the earlier report and the Act have the essential priorities reversed.

The report of the Mineral Resources Committee suggested the following priorities:

1. Maximum utilization of available resources
2. Provincial control over the establishment, operation, development and rehabilitation of sand and gravel pits, stone quarries and shale and clay workings would be applied uniformly and that would ensure all such operations conformed to certain basic regulations designed to:
 - A. minimize the unsightly appearance and aggravating conditions associated with these operations;
 - B. encourage progressive rehabilitation and enforce ultimate rehabilitation;
 - C. guarantee that adequate funds are available to implement the rehabilitation requirements.
3. The formulation of the basic policy as to where pits and quarries are to be located should be initiated at the municipal level. The development of this policy should be part of a total municipal planning program which should be expressed in an official plan.

It is the unanimous conclusion of the Working Party that any legislation to control the extraction of mineral aggregates in Ontario must ensure:

FIRSTLY—A commitment on the part of the municipalities, the aggregate industry, the Provincial Government and all segments of the community at large to ensure that the transgressions and unreasonable trespassing against our environment and our quality of life by the extraction industry in the past will cease, and that these operations will in the future be conducted under legislation that is broadly acceptable and enforced under regulations that are enforceable; and then

SECONDLY—That within the guidelines of this commitment the provincial policy will be structured to ensure that adequate supplies of aggregate resources are made available in a competitive situation in the appropriate locations.

In short, resource extraction in designated areas will only be acceptable if local interests are considered first.

It is also equally clear to us that, while the earlier Mineral Resources Committee touched on many, if not all, of the major problems and concerns regarding the aggregate industry, their approach lacked the depth of analysis and the specific data essential to achieve broadly acceptable and effective legislation. But equally it is obvious that to be successful their suggested approach would have required a mature provincial/municipal planning process and completion of the mapping of the aggregate resources of southern Ontario as a minimum. These requirements are only just within sight today.

In our review of the administration of the present Act it is plain:

- that due to the lack of specifications in the regulations and other omissions in drafting, the Act is difficult to enforce;
- that rehabilitation requirements are frequently not adequately identified on the site plans;
- that even if the Act had been drafted more specifically, it would not have been enforced.

For example:

1. The establishment of what was “acceptable” or “essential” in the location and operation of extractive operations was contained in the regulations and was subject to interpretation by the administration.

It is the opinion of the Working Party:

THAT SUCH DECISIONS CAN ONLY BE MADE BY, OR IN CONSULTATION WITH, THE PEOPLE AFFECTED. MEANS TO THIS END ARE SUGGESTED IN CHAPTER 2.

2. The Act ignores completely the problems and process of establishing the “need” for pits and quarries in any given “local municipality” yet requires the Minister of Natural Resources to address the problem.

It is the opinion of the Working Party:

THAT THE DEMAND FOR AND HENCE THE SUPPLY OF AGGREGATES MUST BE SHARED EQUITABLY BY ALL RESOURCE COMMUNITIES, AND THAT A PROCESS MUST BE DEVELOPED TO ACCOMPLISH THIS END WITHIN A COMPLETELY FREE ECONOMY. THIS PROBLEM IS EXAMINED AND AN APPROACH SUGGESTED IN CHAPTER 3.

3. The process by which resource zoning was to be achieved was not adequately developed or explained.

It is the opinion of the Working Party:

THAT THE AREAS TO BE KEPT AVAILABLE TO MEET THE FUTURE NEEDS OF THE PROVINCE CAN ONLY BE IDENTIFIED ACCEPTABLY IF THE PROVINCE AND THE APPROPRIATE MUNICIPAL GOVERNMENT TOGETHER IDENTIFY AND AGREE ON THE RESOURCE AREAS FOR POSSIBLE FUTURE EXTRACTION. THE APPROPRIATE LEVEL OF GOVERNMENT CONCERNED IS IN ITSELF A MAJOR ISSUE. THESE ISSUES HAVE BEEN ADDRESSED AND A PROCEDURE FOR SOLUTION IS SUGGESTED IN CHAPTER 4.

4. The act does not provide any capabilities to encourage the rehabilitation of abandoned pits and quarries on private land.

It is the opinion of the Working Party:

THAT A MEANS OF ACHIEVING REHABILITATION OF SUCH PITS AND QUARRIES IS AN ESSENTIAL ELEMENT IN THE POLICY AS OUTLINED IN CHAPTER 5.

5. Problems caused by conflicts and overlapping legislation were not resolved.

It is the opinion of the Working Party:

THAT EFFECTIVE GOVERNMENT POLICY REQUIRES THAT CONFLICTS OF LEGISLATION BE RESOLVED IN A MANNER BROADLY ACCEPTABLE TO ALL CONCERNED. INSOFAR AS POSSIBLE THE ENFORCEMENT OF THE SEVERAL APPLICABLE PIECES OF LEGISLATION SHOULD BE CENTRALIZED UNDER ONE AUTHORITY IN ORDER THAT COMMON STANDARDS AND ACCOUNTABILITY CAN BE ACHIEVED. THE MAIN CONFLICTS AND THE MEANS FOR THEIR RESOLUTION ARE OUTLINED IN CHAPTER 6.

6. While the Mineral Resources Committee recommended that the same standards be applied to old and new operations and that they be enforced uniformly across the Province, little or no attention was given to the practical application of the recommendations, to the definition of rehabilitation, and to how rehabilitation was to be achieved or enforced.

It is the opinion of the Working Party:

THAT EFFECTIVE AND UNIFORM ENFORCEMENT OF THE POLICY IN ALL OPERATIONS IS A FIRST ESSENTIAL TO ACHIEVING CREDIBILITY AND LOCAL ACCEPTANCE OF AGGREGATE OPERATIONS. THE IMPLICATIONS AND COST OF THIS ARE DEVELOPED IN CHAPTER 7.

7. The Act ignores completely the pleas from the municipalities for compensation to cover the real municipal cost of the extractive industry. This remains a most pressing issue in areas of intense extraction.

The Working Party has reviewed the need for such compensation and recommends:

THAT COMPENSATION SHOULD BE GRANTED TO MUNICIPALITIES TO COVER THE

COSTS WHICH THEY INCUR AS A RESULT OF EXTRACTIVE OPERATIONS AS OUTLINED IN CHAPTER 8.

8. The Mineral Resources Committee did examine the need for, and problems of wayside pits, and recommended that they should be subject to the same minimum performance standards recognized for permanent operations. However, it is questionable whether this is being achieved under the present Act.

It is the opinion of the Working Party:

THAT CHANGES IN GOVERNMENT POLICY AND LEGISLATION TO ACHIEVE THE ORIGINAL OBJECTIVE OF THE COMMITTEE WITH REGARD TO WAYSIDE PITS ARE NECESSARY AS IDENTIFIED IN CHAPTER 9.

9. It was clear that the Mineral Resources Committee was hampered by the lack of critical data. The Committee recommended resource studies and while much progress has been made in this direction in the last five years, there is still a great deal of research necessary.

It is the opinion of the Working Party:

THAT EVOLVEMENT OF AN EFFECTIVE LONG TERM RESOURCE MANAGEMENT POLICY WILL REQUIRE MUCH ADDITIONAL BASIC RESEARCH WITH RESULTS FREELY AVAILABLE TO ALL CONCERNED. MORE EFFECTIVE MEANS OF REHABILITATING AND DEVELOPING SEQUENTIAL LAND USE FOR EXTRACTIVE AREAS, IMPROVED SYSTEMS OF EXTRACTION AND TRANSPORTATION, AND THE DATA REQUIRED FOR MORE ACCURATE PREDICTION OF DEMAND ON AN AREA BASIS ARE ONLY A FEW OF THE REQUIREMENTS IDENTIFIED IN CHAPTER 10.

As the preceding summary of problems indicates, it is clear to us that even with a proper ordering of priorities an effective aggregate policy will require a very carefully considered and ordered approach to what is a most complex and difficult social and economic problem.

It must be clear from the outset that in order to reach the desired goals:

protection of local interests

and

resource availability

the proposed solutions in the following chapters should not be considered in isolation. All are essential elements for effective mineral aggregate resource management in Ontario.

CHAPTER 1

REVIEW OF THE WORKING PARTY PROCESS

In Ontario, we are faced with a rising demand for sand, gravel and stone. In addition, many people are quite plainly dissatisfied with the location, operation and rehabilitation of existing pits and quarries and have no confidence in the assurances of operators who propose to open new pits or quarries. The public also lacks confidence in the enforcement of *The Pits and Quarries Control Act, 1971*, which is simply not doing the job it was intended to do.

The Ontario Mineral Aggregate Working Party was established by the Minister of Natural Resources, the Honourable Leo Bernier in December, 1975, to provide advice and assistance to the Ontario Government on mineral aggregate policy.

TERMS OF REFERENCE

1. To recommend by way of a report to the Minister of Natural Resources an effective and broadly acceptable Mineral Aggregate Resource Management Policy for the Province of Ontario;
2. To consider and recommend ways and means of implementing the said mineral aggregate resource management policy including new legislation requirements;
3. To solicit public viewpoints relating to the above matters by accepting briefs and holding public discussions with such interested persons as the Working Party may select;
4. To consider any such other matters relating to an aggregate resource management policy as may be referred to the Working Party by the Minister of Natural Resources.

THE PUBLIC PARTICIPATION PROGRAM

From the outset, the Working Party decided that public input was essential to ensure that all points of view were considered. Written briefs were requested from 22 groups, organizations and municipalities. The Working Party met with 18 of these groups after receiving their written briefs and well over 600 written comments, open house records and questionnaires were submitted to the Working Party including:

SUBMISSIONS AND MEETINGS WITH THE WORKING PARTY

Aggregate Producers' Association of Ontario
Association of Counties and Regions of Ontario
Blair Ratepayers Association
Conservation Council of Ontario
Foundation for Aggregate Studies
Grey County
Monota (Mono Tax Alliance)
Niagara Escarpment Commission
Ontario Association of Landscape Architects
Ontario Road Builders' Association
Regional Municipality of Durham
Regional Municipality of Halton
Regional Municipality of Ottawa-Carleton
Regional Municipality of Peel
Regional Municipality of Sudbury
Regional Municipality of Waterloo
The Planning Act Review Committee
Uxbridge Township Ratepayers Association
Wellington County

MAJOR SUBMISSIONS IN WRITING TO THE WORKING PARTY

Association of Municipalities of Ontario
Caledon Township Ratepayers
Dufferin County
INCO Limited
Metropolitan Toronto and Region Conservation Authority
Municipality of the Township of Erin
Ontario Good Roads Association
Ready Mixed Concrete Association of Ontario
Regional Municipality of Niagara
Rural Ontario Municipalities Association
Township of Mono
Township of North Dumfries

Wellington-Dufferin-Peel NDP Riding Association
Zorra Gravel Pit Owners and Operators Association

The main objectives of the public participation program were:

1. To provide some basic background information on the importance of the issues relating to pits and quarries to interested people and groups in six selected areas: Kitchener-Waterloo, Guelph-Wellington, Caledon-Mono-Erin, Uxbridge-Stouffville, Sudbury, and Ottawa-Carleton.
2. To present to the people of these areas what the Working Party sees as the problems and possible solutions to those problems.
3. To solicit from interested people and groups additional problems, the perception of the problems, the possible solutions and any additional solutions.
4. To accomplish the above so that anyone may obtain information and contribute their ideas.
5. To foster positive contributions useful to the planning process and formulation of policy options.

Details of the program of work, the results and responses, observations and suggestions are given in full in Appendix 2.

The numerical response was as follows at the six open houses:

	Caledon	Guelph	Kitchener	Goodwood	Sudbury	Ottawa	Total
Open House Visitors	250	75	100	150	25	200	800
Coupons Completed	72	40	61	59	34	37	303
Written Comments & Open House Records	136	38	45	70	9	37	335

The Open Houses have highlighted four main points:

1. The concern for pits and quarries is a local issue. The most pressing problems are truck traffic on roads, the damage done to the environment and the ugliness of abandoned and existing pits and quarries.
2. The objectors to pits and quarries who were directly affected acted in good faith by presenting constructive comments and concerns about the problems as they see them.
3. Generally, there has been a lack of rehabilitation of pits and quarries by a large segment of the industry.
4. The present Pits and Quarries Control Act, as perceived by the public, is not adequately enforced.

THE ISSUES AND INFORMATION EXAMINED

The Working Party has studied typical examples of enforcement and control to understand how the new legislation would have to work to overcome the problems in the existing act.

1. Many problems associated with the existing Pits and Quarries Control Act were identified and analyzed.

- It is extremely difficult to enforce the Act and its regulations because of the vague wording and different interpretations.
- Site plan requirements are not set out precisely, resulting in plans with varying amounts of detail.
- References in the Act to rehabilitation are loose, for example “as far as possible....progressive and ultimate rehabilitation”.
- There are problems in administering the present Act because of specific omissions in requirements and an inadequate number of Ministry of Natural Resources staff.
- The system of issuing licences and permits is also inadequate, because not enough information is required from the operators and there is no simplified system for recording licence and permit information.
- The rehabilitation security deposit of 2 cents per ton of material removed in the previous calendar year up to \$500 per acre was studied by examining actual rehabilitation costs per ton and per acre. The security deposit was found to be inadequate.
- The Act calls for an annual review of all licences and this is currently not being fully practiced.
- The definitions in the Act are inadequate.
- Regulations to the Act are inadequate.

2. The hearing process under the existing Pits and Quarries Control Act, as conducted by the Ontario Municipal Board was examined along with several reports by the Board to the Minister of Natural Resources. The Working Party also studied the Environmental Assessment Board and procedures, the hearing officer procedure of the Niagara Escarpment Planning and Development Act and considered the possibility of establishing a new special purpose hearing board.

3. The impact of the aggregate industry on the community was examined to assess whether the industry is paying its fair share of costs for demands on the community. Fifteen methods of financial remuneration to the municipalities for the real cost factors associated with aggregate extraction were analyzed including: municipal imposts, lump sum payments, increased assessment, grants to municipalities, special sales tax and licence fees. Twelve alternatives were quickly ruled out because they were constitutionally invalid or did not offer a reasonable solution to the problem. The three remaining alternatives — municipal imposts, licence fees and increased security deposits — were examined in great detail.

4. A literature review was conducted on the rehabilitation of pits and quarries in Ontario, the United Kingdom, the United States and West Germany. (For selected references, see bibliography.) The Working Party examined the types and methods of rehabilitation currently used in Ontario. This involved site

visits to both rehabilitated and derelict pits and quarries, for example, a stone quarry in Burlington, and gravel pits in Puslinch and Uxbridge Townships.

5. Derelict land and abandoned pits and quarries were examined, and particular attention was paid to landscaping or rehabilitating the areas in question. Approaches for rehabilitating derelict land in other countries and provinces were examined: *The Land Surface Conservation and Reclamation Act 1973* (Alberta); *The Industrial Development Act 1966* and *The Local Government Act 1966* (United Kingdom). The Ministry of Natural Resources Crown Pit Rehabilitation Program was also reviewed. (See bibliography.)

6. The Quaternary (Pleistocene) mapping techniques used by the Geological Branch of the Ministry of Natural Resources were analyzed. From these Quaternary maps, granular resources inventory maps and recommended extractive area maps are produced. This mapping program and technique is of great importance because it will provide the information base for the development of official plan policies by the designated municipalities. A list of maps and publications related to this mapping is contained in Appendix 3.

7. In April of 1974, an Interministerial Committee on Mineral Aggregate Policy was established with representatives from the Ministries of Natural Resources, Revenue, Housing, Transportation and Communications, Treasury Economics and Intergovernmental Affairs, Environment and the Cabinet Office. This Committee was charged with delineating alternative mineral aggregate policy options.

By the Spring of 1975, the Interministerial Committee had come to agreement on a general policy approach whereby:

The Province should provide municipalities with detailed information regarding areas of high aggregate potential and should assist municipalities in assessing the on and off site ramifications of aggregate mining and competing land uses so that municipalities are able to decide which high potential areas are suitable for incorporation as extractive areas in their official plans. Licences should then be granted upon application in areas zoned extractive, following normal application procedures. This approach should be coupled with financial incentives to municipalities to make pit and quarry operations more palatable.

In April, 1975, Cabinet directed that a senior interministerial group should be established to prepare ways and means of formulating and implementing a mineral aggregate policy for Ontario based upon consideration of the following:

- (a) Provincial intervention to ensure the continued availability of mineral aggregates.
- (b) whether the cost of aggregate should include some form of remuneration to the municipalities to compensate them for costs imposed by the industry.
- (c) examination of the longer run aggregate supply situation with specific reference to alternate sources, underground mining, substitutes, etc.
- (d) a continued emphasis on the responsibility which the industry itself must bear to become more acceptable to municipalities and the general public.

This interministerial group recommended the development of a system of Pits and Quarries Agreements, similar to the special subdivision agreements already in use.

The final report of the Interministerial Committee on Mineral Aggregate Policy was appraised in detail and some of their findings incorporated in this Report.

8. The Mineral Aggregate Studies and Geological Inventories produced for the Ministry of Natural Resources for Central, Eastern and Southwestern Ontario were examined and reassessed. Supply and demand for mineral aggregates is a critical factor that will face the industry, the Ministry of Natural Resources, the municipalities and the public in the future. Supply and demand on a regional basis may fluctuate considerably.

A team of economists from the Ministries of Treasury, Economics and Intergovernmental Affairs; Environment; and Natural Resources, examined the demand for mineral aggregates and reported their findings to the Working Party for examination. Appendix 4 sets out the findings of this team and Chapter 3 explains the need for mineral aggregates.

9. The proposed official plan sections relating to mineral aggregates for the following Regional Municipalities were reviewed: Durham, Ottawa-Carleton, Peel and Waterloo. The Working Party has concluded that none of these adequately covers mineral aggregates. There are three reasons for this:

1. the absence of a provincial policy for mineral aggregates;
2. the planners' lack of geological knowledge and understanding of the need for mineral aggregate;
3. until recently the Ministry of Natural Resources had not provided the regions and counties with an adequate data base on Quaternary geology.

Chapter 4 and Appendix 6 review the various official plan techniques, and the planning system in Ontario today.

The powers given to a municipality under The Planning Act, Section 35(1)6, as utilized by The Regional Municipality of Sudbury were considered. In their by-law No. 76-90 there is a blanket prohibition of pits and quarries except in three specific areas. All new pits and quarries are subject to rezoning.

The powers of The Municipal Act, Section 254(1) 123 to regulate the carrying on of pit and quarry operations were appraised by studying the case of The Corporation of the Township of Uxbridge *vs.* Timbers Brothers Sand and Gravel Limited, before The Supreme Court of Ontario. This case highlighted three main points: The Pits and Quarries Control Act and its regulations set only the minimum requirements or standards; a pit or quarry is not a use of land; and pit or quarry operators may be required to enter into contractual agreements with a municipality.

10. The transportation of sand, gravel and stone gives rise to one of the most difficult problems facing the industry. The Working Party observed and researched various modes of transport including truck, rail and ship. Appendix 5 reviews the research conducted and reports written for the Working Party by the Ministry of Transportation and Communications and the Canadian National Railway.

11. Four case studies were chosen for examination as follows: A specific Eastern Ontario case was chosen as an example of the difficulties of enforcing the present Act. This involved an illegal operation, that is, mineral aggregate was being removed from a site that did not have a licence to operate under The Pits and Quarries Control Act, 1971. The time and costs involved in having the operation stopped were immense. There are also many delays and complex procedures to be followed before a conviction is final. This case has taken over two years and is now under appeal.

As an example of the difficulties of getting a site licensed, the Working Party analyzed The Preston Sand and Gravel Company Limited case at Blair. This application went through three Ontario Municipal Board hearings and scrutiny by the Ombudsman before a licence was issued to operate as a pit. The Working Party reviewed the site plans, the environmental impact plans, the transport-traffic study and all other documents and statements related to the case. The time and costs involved were also considered in order that the Working Party would become familiar with the entire process of obtaining a licence.

A case of a licenced operator in Central Ontario was also appraised because of its high profile location where operations were carried on, in clear view of all who travel Highway 401. The issue examined was whether a licence should have been granted. We conclude that before the licence was issued more information should have been required about the quality and quantity of mineral aggregate on the site because in fact neither the quality nor the quantity of material justified the issuance of a licence. Large areas of land were ripped up with no attempt to carry out progressive rehabilitation. Equipment used was old and there was a general lack of housekeeping. The site also lies in the Niagara Escarpment Pit and Quarry Restrictive Area.

The issuance of wayside permits by the Ministry of Transportation and Communications and the Ministry of Natural Resources was examined in general. Two specific cases in Uxbridge and Huntley Townships were reviewed in detail.

12. The Ministry of Transportation and Communications outlined for the Working Party in some detail the procedures for handling earth borrow and granular materials in road construction including current specifications for materials, strip map indices, borrow pit requirements, regulations for wayside pits and quarries, agreements by contractors, legal relations and responsibilities of the contractor and payment procedures for road construction.

The Ministry of Transportation and Communications also provided information relating to the economic use of mineral aggregates in road construction including pavement structures, aggregate problem, methods of overcoming material deficiencies and improving materials and/or designs to utilize less granular materials, waste materials, pavements designs and types, thickness design guidelines and Ontario pavement costs.

Papers were also presented on the qualities and properties of various types of mineral aggregates, their locations and specialized equipment required to process materials (see Bibliography-Jennings).

13. Related legislation were evaluated including: *The Planning Act*, *The Municipal Act*, *The Niagara Escarpment Planning and Development Act*, *The Environmental Assessment Act*, and *The Environmental Protection Act* and *The Trees Act*.

14. Two meetings were held with the Planning Act Review Committee given the mutuality of interest between this group and the Working Party.

15. The Working Party considered control of pits and quarries at all levels of government including: total control by townships or area municipalities, total control by regions or counties, total provincial control and joint provincial-municipal control.

16. The public participation program which was a critically significant component of the Working Party process was outlined in some detail earlier in this chapter.

17. Environmental problems such as dust and emissions, noise, and blasting and ground water control were considered as they related to pit and quarry extraction. The Working Party evaluated how these problems are presently handled through The Environmental Protection Act and The Ontario Water Resources Act. The Model Municipal Noise Control By-law was also reviewed.

18. The Working Party also considered the current assessment situation, including variations in assessment across the Province, the effects of the proposed reform of property taxation in Ontario and how it will affect mineral aggregate land.

CONCLUSIONS

The problems dealt with by the Working Party have no simple solutions. It is difficult to formulate effective legislation and policy for mineral aggregates because of the complexity and interrelating of the several problems. However, the Working Party has concluded that it is essential that the following problems and solutions be generally acknowledged:

1. Local involvement is essential in the planning and approval process if concerns are to be effectively stated and considered.
2. Without proper planning, there is no way to protect resources for the future.
3. Acceptable standards of operation are so varied that they defy generalization and therefore regulations must allow for local choices and participation.
4. As suggested by the Interministerial Committee on Mineral Aggregate Policy, the most effective way to properly control pits and quarries is through provincial-municipal shared control. A method of achieving this is set out in Chapter 4.

Having given due consideration to the realities of municipal politics, of resource distribution and of the geography of this Province, to the need for adequate supply in a competitive situation, and to the desirability of restricting cost increases to those that are essential for the protection of the environment and the interests of local inhabitants, the Working Party is offering, in the following chapters, the means whereby the essentials outlined in 1 to 4 above can best be achieved.

CHAPTER 2

LOCAL INVOLVEMENT AND REHABILITATION

LOCAL INVOLVEMENT

Aggregate extraction is by its very nature a disturbing activity to local residents. Clearly if this activity is to be acceptable to local residents then they must understand the alternatives, participate in the planning of the operation, and have effective confidence that their expectations will be met and their interests protected.

The Working Party has attempted to measure the extent of effective rehabilitation since the Act was passed in 1971, but lacking definitive statistics, we can only guess that it has occurred in a very minimal percentage of the disturbed area. While there are some notable examples of progressive and imaginative rehabilitation, it would appear that such operators still represent a small fraction of the industry and that there is much misunderstanding as to what is the true meaning of the words "progressive rehabilitation".

Nevertheless the Working Party was very encouraged to find that most of the wide spectrum of people contacted appear to know and understand that all regions have a part to play in the provincial economy. They appeared only to want assurance that it is a reasonable part and that their interests are to be protected.

Only one group and a few individuals interviewed by the Working Party said "We don't want gravel pits". Most said - "We know that gravel pits are necessary, - but....".

After a review of many alternatives, the Working Party suggests, as the most effective and appropriate means of meeting the objections of local interests, while at the same time providing the essential flexibility demanded by the vagaries of Ontario geography, that *the decisions as to where and under what conditions aggregate extraction operations are to be conducted be placed in the hands of regional or county councils*. This is the essential element of the policy suggested, along with measures for more effective control of the operations and adjacent developments.

The rationale for the above recommendation is that a perception of local sensitivities is essential in deciding whether a concept of screening, of rehabilitation or of operations is “acceptable” or “non-acceptable”. The Working Party could find no other mechanism that appeared to be both effective and credible.

In essence we recognize that most other mechanisms are too remote or too cumbersome. We did carefully consider the establishment of a number of special purpose bodies to cover the designated areas in Ontario but concluded that while the advantages of local representation independent of the political process are considerable, the difficulties in establishing another set of special purpose bodies in Ontario outweighed any advantages. The Working Party believes that such bodies would still lack credibility with the local residents who would probably continue to insist on making a contribution to an appeal process. Such an appeal process is provided for in our recommendations.

One of the major issues addressed by the Working Party was the question of what level of local government should be responsible for dealing with all the matters raised in the following chapters. *It is the opinion of the Working Party that the region or county is the most appropriate level of government to deal with pits and quarries*, for the following reasons:

1. The regions and counties have the staff and support services to cope with the work involved in matters relating to pits and quarries.
2. Perceptions at the local municipal level can be parochial, while the resources of the Province must be shared and not regulated solely by local issues.
3. Government at the local municipal level could be “too close” to the problem for several reasons as evidenced in these generalized quotes from township councillors, reeves or mayors:

I don't want the responsibility of control over pits and quarries because I curl with half the township and I am related to the other half.

or

There are no problems with obtaining aggregate materials in our municipality....

when the Working Party was aware that the petitioner owned a major interest in the only large aggregate site in the township.

The complexities involved in dealing with pit and quarry matters require objectivity and a broad understanding of the provincial need for aggregates. It is the opinion of the Working Party that regions and counties are in the best position to deal with this issue through their planning staffs.

On the other hand it is essential that any decisions made clearly reflect and represent local municipal concerns. For this reason, *the Working Party suggests that each region or county appoint an Aggregate Advisory Committee (AAC)* selected from a list of nominees submitted by the respective local municipal councils, with representation prorated to reflect the proportion of aggregate production at the local municipal level and the transportation routes.

We further suggest that the Aggregate Advisory Committee be made up of five members appointed for a two-year term. The Committee should elect its own chairman annually and committee terms should be staggered so that there would be a constant change in membership. The individuals selected would require the following qualities:

1. time available to serve, exposure to the local problems of the aggregate industry, and personal objectivity;
2. knowledge of the industry, and/or basic familiarity with municipal law, and/or represent a citizens group.

It would be essential that all appointees be residents of the local municipality. Committee costs would be paid out of the monies collected for licence fees, as outlined in Chapter 8.

The Working Party is concerned about various local problems and makes the suggestion that the Aggregate Advisory Committee is required to thoroughly represent the concerns of the local residents affected and to assist council in dealing with mineral aggregate issues.

In fact, in the case of those regional or county municipalities which have an annual production level exceeding 5 million tons we believe that such an Aggregate Advisory Committee should be mandatory for the following tasks:

1. *To participate* with the Ministry of Natural Resources pit and quarry inspector on the *annual review of any problem licences* and to investigate any specific complaints.
2. *To make recommendations* to the Ministry of Natural Resources' regional mineral resources supervisor on the acceptability of the rehabilitation and operating program of the pit or quarry (See Chapter 7).
3. *To participate in the periodic review of site plans* and *to make recommendations* to the regional mineral resources supervisor regarding the need to upgrade or improve the site plans and add any conditions. Such review would be done at least once for every operation over a three year period.
4. *To assist council in reviewing new licence applications* as outlined in Chapters 4 and 7. Such a review could include a public meeting held by the council to make all pertinent information available to the local public and to solicit their views (see Chapter 7). This procedure is not intended as a formal hearing process.

If a regional or county council does not appoint an Aggregate Advisory Committee, the Ministry of Natural Resources regional mineral resources supervisor would request a representative either from the regional or county staff or the council to participate with the Ministry of Natural Resources staff on their annual review of problem licences and to participate in the periodic review of site plans.

In conclusion, we believe that the Aggregate Advisory Committee will meet the need for a representative advisory body accessible both to regional or county councils and to the Ministry of Natural Resources staff in the planning approval and enforcement process. We clearly heard the message in our travels that there was a need for accessibility at the local level, and yet the local municipality lacks the resources to contend with the problem. We believe the Aggregate Advisory Committee, representative of high aggregate extraction areas, and responsible to regional or county council, is the answer.

The Working Party is unanimous in its belief that *achievement of this goal is the essential element in this policy*. Without this, the intent of all the following proposals will be largely made ineffective.

Therefore we recommend:

1. That the regional or county government is the appropriate level of municipal government to deal with aggregate issues.
Ref. 2, 3, 9, 14, 15, 17, 18, 21, 23*
2. That all regional or county municipalities producing more than 5 million tons annually be required to appoint an Aggregate Advisory Committee from nominations provided by local municipalities and selected to reflect the level of production from those local municipalities. In all other cases such an Aggregate Advisory Committee be appointed if requested by the local municipalities producing the majority of the aggregate in the region or county.

REHABILITATION

The Working Party has observed that there are many different interpretations of the term “rehabilitation”. We have been advised by some that a quarry with vertical faces which is allowed to fill with water is rehabilitated. We have seen site plans calling for land to be rehabilitated to agriculture when not more than a quarter of an inch of topsoil ever existed in the area. We do not believe there is anything devious or deliberate in this confusion, but that it stems from the failure of the present Act to define rehabilitation adequately.

It is therefore necessary to establish a common understanding of what constitutes rehabilitation.

As a minimum requirement the land should be brought back to the level of productivity before the extraction started, and should be in a useful form harmonious with the surrounding land use, or to some other use as specified in the site plan and agreed to by the local council.

The land must go back into a useful category but not necessarily a different use. Examples are: pasture land with the same amount of cover as before extraction started or raw land ready for any use that may be deemed economically or socially acceptable.

As a minimum, rehabilitation would consist of grading, earthwork and sloping; where feasible it should also include spreading overburden and topsoil over the final pit or quarry floor and side slopes; planting grass and cover vegetation to control erosion and planting trees.

This description of rehabilitation would be appropriate for small and medium sized pits and quarries in rural settings. Extraction in any urban setting, however, involving a complex hydrological situation or a complex environmental system would require closer attention to rehabilitation details.

Rehabilitation is difficult to define because of the numerous variations in size, shape, depth, adjoining land uses, deposit features, climate, drainage, visibility from adjoining roads and residential areas, and regional land values that make each pit or quarry unique in the Province. For these reasons, each site and particularly the larger sites must be considered in its own physical, cultural, social and economic context. Also, a specific site plan should be devised in each case to carefully control rehabilitation.

*Note: These footnotes refer to briefs as documented and numbered in Appendix 1.

There is also the problem of timing. If the process of aggregate extraction is to be made more acceptable, some way must be found to make the benefits of rehabilitation obvious to those concerned. In short, rehabilitation should occur generally within the lifetime of those affected, preferably within ten years. With the present mining techniques, this is generally only possible within the smaller operations. Incentives must be provided to encourage new techniques of planned extraction which limits the area under extraction at any time, and makes continuous visible rehabilitation possible.

The Working Party recommends:

- 3. That progressive rehabilitation be defined in the new act as planned mineral extraction with concurrent treatment of the land so that it is progressively returned to the condition described in the site plan, developed with the assistance of regional or county and local councils.**

Ref. 4, 10, 13, 14, 17, 24.

When such practices become widespread much of the resistance to aggregate operations could be eased, and even eliminated.

However, even if this ideal could be generally achieved a further problem remains — rehabilitation to what? Few municipal councils wish to commit themselves on zoning from ten to twenty years in the future and few operators are in any way prepared to make a commitment to an absolute land use other than rural residential development.

In an ideal site planning process, aggregate extraction and land shaping operations are planned and programmed in advance before extractive operations are initiated.

Rehabilitation occurs concurrently with extraction operations to achieve optimal use of equipment and avoid needless rehandling of topsoil and overburden. Land sloping and forming operations are combined with extraction so that useful land forms are created during the course of extractive operations. One important advantage to progressive rehabilitation is that it is paid for at current rates and not in the future at increased rates and equipment on site can be used when it is otherwise idle again, thus cutting actual costs.

The Working Party has observed very few examples of progressive rehabilitation in Ontario today, and yet this is the concept most desired by those resident in the extractive areas. How is this goal to be accomplished?

As will be explained in Chapter 7, we believe that strict adherence to the site plan conditions coupled with periodic reviews of the site plan and the powers of suspension of the licence for failure to perform is the only effective way. Again, the availability of an Aggregate Advisory Committee to interpret what is acceptable appears to be essential.

Therefore we recommend:

- 2. That rehabilitation of extracted areas be progressive on an annual basis as stated in the site plan agreed by the regional or county and local councils.**

Ref. 4, 13, 17, 24.

CHAPTER 3

NEED FOR MINERAL AGGREGATES

Having provided a process for local involvement over the areas to be designated for aggregate extraction, to the extent that vagaries of glacial geology and our past history will allow, and having provided for local involvement in the process of establishing the operating standards for the pits, and the enforcement of these standards, it is still necessary to ensure that there is an assured supply of aggregate to meet the provincial needs for the future.

The Working Party has examined the “need” insofar as available data will permit and has observed that the need for aggregate production must be considered on a regional as well as a provincial basis, and that needs cannot be established without consideration of each of the following aspects of the problem:

- Demand
- Supply
- Productive Capacity
- Competition
- Alternative Sources
- Underground Mining
- Transportation
- Provincial Policy

This chapter summarizes our investigations regarding each of the above aspects of need, including a description of how they may relate to a decision as to whether there is a “need” for additional production in a given area.

DEMAND

The Working Party has examined the existing data on demand for aggregates in Ontario and has found that little is available other than the three Proctor and Redfern studies on resource availability, transportation patterns, and

Mineral Aggregate Policy

TABLE 1 MINERAL AGGREGATE DEMAND PROJECTIONS* FOR ONTARIO, 1976-2001.

YEAR	Millions of Tons				TOTAL MINERAL AGGREGATES	
	SAND AND GRAVEL		CRUSHED STONE		Annual	Cumulative
	Annual (a)	Cumulative (b)	Annual (c)	Cumulative (d)		
1975	81.0	—	33.7	—	114.7	—
1976	84.7	84.7	35.4	35.4	120.0	120.0
1977	88.9	173.6	37.3	72.7	126.3	246.3
1978	93.5	267.1	39.5	112.2	133.0	379.3
1979	97.2	364.3	41.5	153.7	138.7	518.0
1980	99.8	464.1	43.1	196.8	142.9	660.9
1981	102.4	566.5	44.2	241.0	146.6	807.5
1982	105.2	671.7	45.4	286.4	150.6	958.1
1983	109.0	780.7	47.0	333.4	156.1	1,114.2
1984	111.3	890.2	48.0	381.4	159.2	1,273.4
1985	114.2	1,006.2	49.3	430.7	163.5	1,436.9
1986	116.3	1,122.5	50.2	480.9	166.5	1,603.4
1987	119.0	1,241.5	51.3	532.2	170.4	1,773.8
1988	121.9	1,363.4	52.6	584.8	174.4	1,948.2
1989	124.6	1,488.0	53.7	638.5	178.3	2,126.5
1990	127.3	1,615.3	54.9	693.4	182.2	2,308.7
1991	132.2	1,747.5	57.0	750.4	189.3	2,498.0
1992	137.3	1,884.8	59.2	809.6	196.5	2,694.5
1993	142.5	2,027.3	61.5	871.1	203.9	2,898.4
1994	147.8	2,175.1	63.8	934.9	211.6	3,110.0
1995	153.8	2,328.9	66.3	1,001.2	220.1	3,330.1
1996	158.9	2,487.8	68.5	1,069.7	227.5	3,557.6
1997	162.5	2,650.3	70.1	1,139.8	232.6	3,790.2
1998	170.7	2,821.0	73.6	1,213.4	244.3	4,034.5
1999	176.8	2,997.8	76.3	1,289.7	253.1	4,287.6
2000	183.2	3,181.0	79.0	1,368.7	262.2	4,549.8
2001	189.7	3,370.7	81.4	1,450.1	271.1	4,820.9

*Mineral Aggregate Study, Southwestern Region of Ontario, Proctor and Redfern Limited and Gartner Lee Associates Limited, 1976.

demand in Central Ontario, Eastern Ontario, and Southwestern Ontario (*i.e.*, the Ministry of Natural Resources, Administrative Regions).

To ensure that we were not relying totally on this as one source of projections we commissioned a study to review both the methodology of forecasting demand and the assumptions used in the Proctor and Redfern studies. This study was prepared by the staff of Ministries of Treasury Economics and Intergovernmental Affairs; Environment; and Natural Resources, and is submitted as Appendix 4 to this report. This review provided us with the information that:

1. The Proctor and Redfern model is based upon a single view of possible future circumstances which are assumed to determine the demand for mineral aggregates;

2. The most recent projection of population growth in Ontario assumes low fertility and net annual immigration of 50,000 rather than 70,000 and moderate fertility rate, as used by Proctor and Redfern;
3. The input coefficients used to represent the tons of aggregate consumed per \$1000. of construction appear to have been developed on the basis of personal knowledge and information and have not been supported by the background data presented;
4. Anomalies detected in the forecasting techniques indicate the advisability of developing an alternate range of demand based on possible futures;
5. Considering the maximum expected demand in Ontario as a whole, potentially available* sand and gravel supply appears to be adequate through the year 2025 without considering resources outside of Southern Ontario.

The Working Party however retains a basic scepticism about all such figures, even Statistics Canada data upon which most Canadian economic forecasts are based. For instance, we are advised that the tonnage removed from the 124 townships in Southern Ontario, which have been designated long enough to provide yearly tonnage data, in 1974 and 1975 was equal to, or in excess of that reported for all of Ontario by Statistics Canada. We also note that there appears to have been an eight percent decrease in demand in 1975 from the experience of 1974. Either of these could have a major effect on the accuracy of future demand projections.

Also, as pointed out in the report on Demand Projections –Appendix 4– and in the comments on this subject in the Proctor and Redfern Report on South-western Ontario; it is clearly difficult, if not impossible, to predict with any precision the long term demand for any given region. Not only is this demand a function of geography, changing economic conditions, both regional and provincial and major construction projects in the region, but in addition demand patterns can be altered by changes in the economics of transportation due to economies of scale or changes in technology. One such major change occurred in the 1950's as will be noted later.

The Working Party has reviewed the extremely sparse demand data available for Northern Ontario. We were surprised however to note the very large demand within the Regional Municipality of Sudbury which alone is reported to be in excess of 4½ million tons of sand and gravel annually. This material is an essential requirement for the safe operation of the local mines upon which the economy of that part of the Province is largely dependent. It would therefore appear to be essential to complete the pattern of current studies to establish future demand patterns in selected areas of Northern Ontario on a similar basis to that completed in Southern Ontario before any assumptions are made regarding available supplies from that region.

*Potential available supply: This refers to those deposits that are still available for extraction (assuming a licence could be obtained where one is required) after the physical, institutional and legal restrictions are applied to the possible reserve areas and the aggregate which would not be available deducted from possible reserve totals. Restrictions include: watercourses and flood plains, roads, developed land, airports, parks, Indian Reserves, conservation areas and forest reserves, official plan designations and, as reference, zoning by-laws. Other natural and cultural features were taken into consideration wherever possible, such as Ontario Hydro transmission lines, but these were not considered significant.

We also note that the potentially available supply of aggregates includes three parts of stone to one part of sand and gravel, while the demand for material is almost exactly the reverse ratio: three parts sand and gravel to one part crushed stone. It is not hard to conceive that this alone will create local shortages and a need for changing supply patterns in the future.

After considering all of these factors, and the data summarized in Tables 2 and 3, the Working Party considers a 25 percent deduction from the Proctor and Redfern projections as a "best guess" as to what the future demand pattern of aggregates in Ontario will be (see Appendix 4).

We further consider that a special concern for supplies of sand and gravel must be reflected in all future policy decisions.

In view of the unreliability of the existing data, the Working Party has recognized, that much more confidence in our ability to forecast demand will be required before long range provincial need can be firmly established and conditons to meet those needs fully described.

Therefore, because of these uncertainties, as a matter of urgency, we recommend:

5. That a general review of forecasting techniques be undertaken in order to develop more reliable estimates of the future provincial demand for mineral aggregates.

Ref. 17, 19.

6. That the Ministry of Natural Resources should collect and publish on an annual basis, accurate statistics on production of aggregates in Ontario.

Ref. 17.

7. That the need for quality sand reserves be recognized as a higher priority than that used for stone.

SUPPLY

The supply of material available to meet the future provincial needs is outlined in Table 3. It is noted that while figures reported appear more than adequate to meet forecast needs to the year 2025 for sand and gravel, and beyond in the case of stone; these resources are only *potentially* available. That is, insofar as the broad and preliminary studies to date can determine, these supplies appear to be potentially available; and they will only be available if protected against any use that precludes extraction of the resource in the future, or requires prior extraction as a condition of such development.

The Working Party has examined the possibility that substitute materials could be made available as an alternate supply. We have concluded that there is little likelihood of any substitute or reprocessed material being generally available in any significant quantity at a price less than five times the current cost of aggregates. For this reason, we have dismissed artificial substitutes as a reasonable alternative at this time. However, we have observed that there is a trend to substituting a lower quality material as price increases. We note therefore the possibility that supply could be increased by the use of materials, as a substitute for higher quality aggregate sources.

TABLE 2		SOUTHERN ONTARIO AGGREGATE DEMAND (PROCTOR & REDFERN REPORTS).																	
		(millions of tons)																	
		Actual 1975			Projected Cumulative to 1985			Projected Cumulative to 2000			2025			Estimates 2050			2075		
		S&G	Stone	Total	S&G	Stone	Total	S&G	Stone	Total	S&G	Stone	Total	S&G	Stone	Total	S&G	Stone	Total
Eastern Region		10	4	14	135	57	192	376	161	537	800	250	1050	1250	500	1750	2000	800	2800
South- western Region		11	7	18	134	89	223	443	295	738	950	700	1650	1750	1150	2900	2700	1800	4500
Central Region		42	17	59	598	240	838	1882	752	2634	4400	1500	5900	8250	2600	10850	14500	4500	19000
Total Southern Ontario		63	28	91	867	386	1253	2701	1208	3909	6150	2450	8600	11250	4250	15500	19200	7100	26300
<div>NOTE: Projections beyond the year 2000 are extremely speculative, they are included here to illustrate what the demand levels could reach <i>if</i> the current basis of projections are in fact valid.</div> <div>Italics indicate cumulative demand approaches available supply in the following period.</div>																			

NOTE: Projections beyond the year 2000 are extremely speculative, they are included here to illustrate what the demand levels could reach if the current basis of projections are in fact valid.
Italics indicate cumulative demand approaches available supply in the following period.

TABLE 3 | SOUTHERN ONTARIO AGGREGATE SUPPLY (PROCTOR & REDFERN REPORTS).

	(millions of tons)				%	Potentially Available Supply		
	Reserves		Total	Potentially Available Supply				
	S&G	Stone		S&G		Stone	Total	
Eastern Region	1,800	164,200	166,000	14%	600	23,000	23,600	
Southwestern Region	11,300	90,700	102,000	10%	6,000	4,000	10,000	
Central Region	9,200	62,100	71,300	4%	2,000	1,100	3,100	
TOTAL — SOUTHERN ONTARIO	22,300	317,000	339,300		8,600	23,100	36,700	

Furthermore we are aware that in the process of establishing aggregate reserve areas as proposed in Chapter 4, as much as 75 percent of such resources can be excluded from the protected high resource areas for reasons of sensitivity, conflicting use, etc.

The Working Party has reviewed the studies of available aggregate resources in Northern Ontario (see Appendix 5). We note that the work done to date is limited to air photo interpretation of those resources accessible to water and rail transportation, with limited field confirmation. Appendix 5 states that the available sand and gravel resources in Northern Ontario accessible by rail will not exceed 500 million tons, and that no more than 4500 million tons are available by water transport. In view of the glacial history of this Province and the preliminary site investigations made this year, these estimates would appear to be optimistic. While other more remote resources will certainly have to be investigated, we have concluded that they will be comparatively expensive to develop.

Of course, the resources of stone available in Northern Ontario are limitless but generally these would be prohibitively expensive to crush and transport. Also, for many uses, stone crushed to sand size is not an acceptable substitute for natural sand.

We note the tremendous resources of stone available in the Prescott and Kirkfield area, and of sand and gravel in Grey County; but a means must be found to encourage their development and efficient transportation to market in other regions before these will become viable alternative sources of supply.

Since alternate sources in Ontario appear to be expensive to develop, we have concluded that the needs for the future will have to be met largely from sites in Southern Ontario.

Furthermore, since potentially available resources now identified represent as little as 4 percent and no more than 12 percent of the total resources in Southern Ontario, the logic of identifying and protecting as many of those areas containing potentially available reserves as possible for future use seems inescapable.

While more remote resources are adequate to meet the expanding needs of the future, as will be shown later, the present level of demand will have to be met from operations in those areas and from municipalities currently meeting the demand. Any attempt to shift this pattern will only create further demands and problems elsewhere, especially in view of the fact that alternate sources seem to be limited.

For these reasons, the Working Party recommends:

8. That the Ministry of Natural Resources complete surveys of the available resources in Northern Ontario and publish the data along with a Provincial compilation of aggregate resource data as soon as possible.

Ref. 5, 15, 17, 18, 20, 21.

PRODUCTIVE CAPACITY

The Working Party has attempted to establish the productive capacity of licensed reserves in the Province on a regional basis.

Since very little data was available, the Working Party has not been able to establish how the expanded needs of the future can be met. It is clear, however, that if the pressure on current production areas is not to increase unreasonably, alternative sources will have to be found at whatever costs are necessary to stimulate supply from these areas. It is equally clear that planning will be necessary to ensure that the current level of supply is maintained from present source areas including the Niagara Escarpment Planning Area to cover the present levels of demand into the future.

If we are to plan for the future it is necessary to know, for each municipality, the total existing tonnage licensed.

Until all the details of productive capacity are known, it is very difficult for local, regional or county municipalities to plan ahead. It is our observation that the licenced reserves, and consequent productive capacity, in some local municipalities could already be adequate for any projected share of provincial demand for some time.

On the request of the Working Party, the Ministry of Natural Resources is now accumulating data on the number of licensed pits and quarries, the acreage still to be excavated and the tonnage remaining. This information will be compiled on a regional, county and local municipal basis.

It is therefore recommended:

- 9. That information on productive capacity and licensed reserves be collected by the Ministry of Natural Resources on a regional basis and that this information be made available to the regional or county and local municipalities annually.**

Ref. 17,20,21.

In future, as demand patterns spread between regions, it will be necessary for the Ministry of Natural Resources to collect and publish such information on a provincial basis.

It is the conclusion of the Working Party that the need for additional licences is a function not only of demand but of licensed capacity and that both must be considered in establishing the "need" for additional licences in any municipality.

EFFECTIVE DEMAND

The Proctor and Redfern studies develop the concept of "effective demand" as insurance against both temporary shortfalls in the supply of aggregates and reductions in competition within the industry. Simply stated, the concept calls for the licensing of productive capacity in excess of expected demand. Proctor and Redfern propose that capacity equal to 200 percent of expected demand be licensed.

The concept of licensing surplus capacity in order to prevent temporary shortfalls in supply appears acceptable given the unsophisticated state of demand forecasting and potential shortfalls in local demand. The magnitude of any licensed surplus required is, however, open to question. Industry sources indicate that major operators now include a surplus or inventory factor in their licence applications. Further, while unexpected local shortfalls in supply are prob-

able, any unpredictable shortage equal to the productive capacity already on stream is unlikely.

Surplus productive capacity as a means of maintaining price competition, however, appears a questionable concept. Prices in the aggregate market will be determined by the number of producers operating with equal proximity of the consumer and possessing a capacity to meet any single sale. Prices will tend towards those established by the lowest cost producer. Proctor and Redfern's Central Ontario Region Study shows minimum prices are offered by plants with an annual capacity greater than 1.5 million tons. This limited information available to us indicates large scale producers may have lower average per unit costs and as such play the role of price leaders within regional or sub-regional markets. Price competition will occur only if a new plant with lower average per unit costs than those facing existing producers enters the market, or demand falls dramatically, threatening the continued existence of established plants; an unlikely circumstance.

On this basis, price competition in a particular area will hinge on the extent to which new large scale producers enter any particular market. The Working Party has identified one major constraint to the entry of new large scale producers; the majority of aggregate reserves suitable for large scale operations in relative close proximity to markets are committed to existing producers. In addition to this prime constraint, there are the impediments of capital costs, in the range of 4-6 million dollars for a pit capacity of 1.5 million tons per annum. Existing producers will not bring new production on stream at margins and prices lower than those of existing operations.

We have also heard of the significant price increases in any area shortly after designation. To the extent that legislation results in an internalizing of the environmental costs of the operation, and thus reflects the true cost of production to the provincial society, such cost increases are acceptable.

On this basis the Working Party felt it advisable to recommend:

10. That the regional licensing of capacity in the order of 125 percent of expected demand be used to ensure that regional supplies will be equal to any contingency.

With respect to competition, the Working Party feels that the maintenance of competition would best be served by increasing the access of all producers to high volume markets by seeking better transportation services, and reducing, where possible the cost of entry into the industry by streamlining licensing and control procedures (see Chapter 6).

ALTERNATE SOURCES OF SUPPLY

The Working Party has concluded that planning for the future will be required if the projected expanded requirements of the future are to be met without undue costs, both environmental and economic.

Unfortunately, all the facts required to assess the need for additional productive capacity are not yet readily available. Nevertheless it is clear that as long as the economics of transportation are allowed to dictate the source of supply then production from and transportation out of those regions closest to the markets will increase.

Equally, it is clear that resistance will also increase until such time as local objections reach the point that prohibition of extraction is a popular political platform. It is the observation of the Working Party that this point is not far off in several Ontario local municipalities today.

We have observed that whatever the standard and character of the local road system, there is a point at which industrial traffic in a local municipality is damaging and destructive to the enjoyment of the local environment. Production from both Caledon and Uxbridge townships is in the order of 5 million tons annually. It was here that vocal objectors to pits and quarries were first persistently heard, and it is from here that they are still being heard. Whether the critical point is 5 million, 10 million or 15 millions tons is immaterial. At some point, depending on the geography and character of the transportation process, there is a limit.

With all of the foregoing concerns, we observe that even after discounting Proctor and Redfern figures by 25 percent, it is clear that future provincial demands may increase by as much as 70 percent by the year 2000. This would represent an increase in annual tonnage for the Province of approximately 80 million tons per year. One does not have to be clairvoyant to imagine the consequences of adding this demand to present sources.

For this reason, some form of planning will be necessary to provide alternate sources that can be transported to the market place economically if the pressure for production from these high resource areas is to be removed.

The Working Party has attempted to examine the possibility of supply from the more remote areas identified in the resource studies to date.

In our review we have confined ourselves to those alternatives which would appear to have potential for meeting demand at a "cost" no more than double current experience and to those which contain apparent reserves large enough to be significant in meeting the demands of the future.

While other areas of more limited capacity do exist, the *major* alternatives appear limited to the following:

- Grey County – for sand, gravel and stone

- Kirkfield area – for stone

- Prescott area – for stone

- Sites on the Upper Great Lakes located immediately adjacent to deep water – for stone and some sand and gravel

- Underground mining – for stone within the market area.

In reviewing these alternatives, it is striking how each presents its own problems and environmental hazards. Clearly the problems of achieving acceptable extraction will be little different than those currently being experienced from present sources, and in some cases they may be even greater.

Unfortunately, the economics of each of these alternatives are site specific. Consequently, accurate cost estimates would require expensive pre-engineering and design studies. However an attempt was made to establish order of magnitude costs by soliciting studies from the Ministry of Transportation and Communications and the railroads (see Appendix 5), and by reviewing transportation studies and data provided in past studies in the Proctor and Redfern reports.

As will be noted in the following section, no conclusive data or cost could be established. Nevertheless, it is the opinion of the Working Party that a real possibility exists for achieving significant supply at acceptable cost from each of the

alternative sources noted. If these resources are made available, the total known resources would appear to be adequate to meet provincial needs in the foreseeable future. Supply from at least some of these alternatives would be required if the demands of the future are to be met equitably without undue pressure on those resource areas situated immediately adjacent to major market areas.

UNDERGROUND MINING

Underground mining of aggregates is a real possibility in Metropolitan Toronto, the Regional Municipalities of Peel and York and in the Niagara Escarpment. This method offers the advantages of avoiding transportation costs and minimizing environmental disturbances. The possibility was first identified in the Proctor and Redfern study of 1972, but regrettably there has been little done to establish the economics of such operations since that time.

Mining operation cost estimates require data which in turn requires detailed geological drilling to establish the precise conditions and character of the material for plant and mine design. Without this data, capital and operating cost estimates are speculative at best. We are advised that such site specific studies can cost in excess of 1 million dollars each. Therefore it would seem obvious that it is essential to establish the locations where, and the conditions under which, such operations would be permitted before commissioning site specific studies. On the assumption, that every region must share the problems of meeting the needs of the future, it is then clear that underground mining in these four areas is a major potential source of stone for this market.

We note with some regret that little urgency is attributed to the potential shortfall in supply at this time by the Metropolitan Toronto government. Surely, if each area in the Province is to accept a fair share of the “aggregate problem”, this should be a matter of some concern to the area that is the largest consumer in the Province, and surely, in fairness that regional or county municipality should be promoting as much production within the market area as economics will permit. Otherwise how can the need for other regional or county municipalities to accept disturbances be defended?

On this assumption, the Working Party recommends:

- 11. That Metropolitan Toronto and the Regional Municipalities of Peel and York, as a matter of urgency, provide zoning to allow underground mining of aggregates within these municipalities.**
- 12. That the Province assist in the process of acquisition of mining rights because of the highly fragmented ownership of underground mining rights in Southern Ontario.**

These underground mining sites would require zoning amendments for such a surface use of land because of the long period of time involved. Such an underground site would generate a large number of trucks of all types to and from the site twenty-four hours a day, would require a reasonable surface acreage equal to any aggregate redistribution yard and dedicated access to the provincial highway system.

TRANSPORTATION

Unfortunately there are also problems in providing for supply from the more remote areas and they may be summarized as:

1. How to achieve economies of scale and transportation costs sufficient to make supply from these areas competitive with supplies from existing sources?
2. How to accurately predict the demand patterns so that transportation needs can be identified far enough in the future to allow lead time for the planning and construction of the necessary facilities?

Much data have been provided by the Proctor and Redfern studies on existing transportation costs and patterns.

The Working Party attempted to expand its perception by requesting the studies submitted in Appendix 5 but, like the earlier Mineral Resources Committee, we must confess that the results have not been completely satisfactory.

Nevertheless the following broad conclusions can be drawn:

- In all regions at least 80 percent of current demand moves by road;
- About 90 percent of all aggregate road haulage costs are currently less than \$1.50 per ton;
- Rail can become competitive when haulage distances exceed 50 miles;
- Boat haulage into the Southwestern region of Ontario has become very significant since 1972. Aggregate imports by boat into this area have increased from about 1 million tons to over 2½ million tons in the period 1972-75;
- If we assume that transportation costs of up to three times present levels will be acceptable in the future demands for the period after 2000 might be met in the following manner:

Metro—road or rail from Grey County

—by boat from Prescott

—by boat and rail from Northern Ontario or U.S.A. sources.

Sarnia/Windsor—by boat from Owen Sound, Niagara, Northern Ontario or U.S.A. sources.

London—by road from Grey county

—by boat to Port Stanley

—by rail from Grey County.

Road haulage from Grey County would provide the greatest flexibility and least entry cost since the capital investment required to load and deliver is restricted to the investment in trucks.

Nevertheless the use of provincial roads to haul bulk materials in the quantities perceived to be necessary has major disadvantages as follows:

1. Truck traffic was identified as the problem of greatest concern to the public reporting in our Open House sessions.
2. The energy costs for moving as much as 50 million tons of aggregate over 100 mile distances by truck annually are cause for concern – we estimate amounts of 67 million gallons annually, or an increase in provincial demand for diesel fuels of some 12 percent over present levels. Nevertheless because of the low capital entry cost and flexibility, it is quite possible to predict that if strict limits are put on production from current sources in Southern Ontario then much of the demand shortages will be met by haulage from this area.

TABLE 4 | RAIL TRANSPORTATION OF AGGREGATES TO THE TORONTO AREA.

Origin	Destination	Rail Company	Tonnage		Rate		Miles	Number of Cars	Type of Cars
			1975	1976	1975	1976			
Limehouse	Pinecrest	CNR	365,000	350,000	\$1.24	\$1.40	28	50	Hopper
Limehouse	Scarborough	CNR	250,000	200,000	\$1.28	\$1.50	48	80	Hopper
Manvers	Scarborough	CPR	319,000	325,000	\$1.19	\$1.25	55	50	Hopper
Township	(Rouge)								
Paris	Don	CNR	170,000	140,000	\$1.55	\$1.90	70	16	Hopper
Paris	Milliken	CNR	55,000	60,000	\$1.41	\$1.76	100	50	Hopper
Point Anne	Pickering	CPR	211,000	191,000	\$1.43	\$1.72	100	50	Hopper
Uhthoff	Downsview	CNR	38,000	—	\$1.90	—	100	—	—
Uhthoff	Milliken	CNR	720,000	580,000	\$1.33	\$1.55	97	50	Hopper
Uhthoff	Locations around Ontario	—	216,000	230,000	—	—	—	—	—
Uhthoff	Scarborough	CPR	740,000	400,000	\$1.37	\$1.70	100	50	Hopper
TOTAL			3,084,000	2,476,000					

Is there any alternative? It is curious to note that up to 20 years ago, the majority of the aggregate supplies for the Metropolitan Toronto region apparently moved by rail. But deposits identified closer to the Metropolitan Toronto area, along with improved roads and trucks, have made rail haulage uneconomic and have resulted in the virtual curtailment of production from Grey County. What is required to reverse the trend?

The difficulty is that the alternatives to road haulage, namely railroad and boat, require major capital investments inland and physical plant for loading and unloading facilities if economies of scale are to be established which will provide for movement of significant tonnages and compete with road haulages. Such alternatives will normally develop only when the costs rise to meet these additional capital costs.

Unfortunately, as the available data indicate, this will not occur before demand shortages cause a rise in price in the market areas which would make higher haulage costs bearable. This would amount to a probable doubling of present cost experience. But there may be an alternative.

If movement of aggregate into major market areas could be planned on a sufficient scale, (i.e., units of 5 to 10 million tons annually) then significant economies of scale might be possible. Unfortunately, for the reasons outlined earlier, it is today very difficult to predict regional demand with any precision far enough forward to justify the kind of investment that this type of facility requires.

Another problem is that the demand for aggregates is highly seasonal – 75-80 percent of annual demand moves to the consumption point in the period May through November. In addition, there is virtually no movement on Saturday or Sunday. Economies of transportation will require that the movement be on at least an 11 month per year–7 days per week basis if efficient utilization is to be achieved from the very large capital investment in loading, unloading, and transportation equipment. For this reason, redistribution yards will have to be large– as much as 100 acres in size, and sited to permit this type of continuous movement.

When it is further recognized that one must select a site close to identifiable market demands that will be reasonably stable from 10 to 20 years in the future and around which the major environmental disturbances of such a distribution yard would be acceptable, the dimensions of the problem become obvious.

It is for these reasons that there is little incentive for either the railroads or private industry to provide for the volume of haulage necessary to establish real economies of scale in transportation of bulk material in situations like this. One alternative however, would be for the Province to plan and build the redistribution yards required to meet the Metropolitan Toronto region and other major market areas' expansion requirements. These yards should be sited to meet the best forecasts of future demand patterns and should be of sufficient size that they can be expanded conveniently to meet future requirements. They could be operated on a toll basis with access for all shippers.

While such facilities could prove to be the catalyst required to provide an alternative for future supplies, it is clear that much further study is required to establish the feasibility of the concept size and optimum location, and costs. Also, many years would then be required for construction. We can conclude therefore that such facilities would not be available until after 1985.

After analyzing the future needs for aggregates in Ontario and the various alternatives possible, it is the recommendation of the Working Party:

- 13. That it be accepted as an essential part of the Provincial policy that all aggregate areas share appropriately in the demand for sand, gravel and stone and that the Province take the initiative to begin the planning to provide for the transportation of supplies from more remote areas to meet future expansions of demand.**

We conclude that it should be an essential element of such planning that all redistribution sites be located to provide for both rail and boat traffic, or at least, if rail depots are established, that boat depots be also established to serve the same market. We make the above observation after concluding that the realities of rail tariff structures in Canada are such that economies of scale will not be recovered unless a competitive mode of transportation either boat or road is available.

Again, we note the need for the Metropolitan Toronto area to provide for planning and zoning to accommodate this siting of such redistribution centres.

We also note the importance of the federal government in planning such facilities today, particularly since these redistribution yards will require harbour facilities, and since one preferred site for underground mining of aggregates in the Regional Municipality of Peel could be under the Toronto airport.

Therefore the Working Party recommends:

- 14. That the Ministry of Natural Resources and the Ministry of Transportation and Communications should begin immediately working with the Federal and Metropolitan Toronto governments, the Regional Municipalities of Peel and York to identify and protect areas where redistribution sites and underground mining could be located to provide for increases in future demands from the Metropolitan Toronto area.**

In conclusion, by taking action now to identify and plan for the needs of the future, the Province can do much to assure the availability of future supply at acceptable cost. Equally important, the Province would achieve credibility by assuring the residents of current production areas that there is a limit to the share of the provincial demand that each regional or county municipality will be expected to supply, and that supply of aggregates will be taken equally from the producing areas.

PROVINCIAL POLICY

Having reviewed the foregoing factors which we have identified as necessary to establish the "the need" for aggregate production on a regional basis,

We have concluded that with proper management, Ontario resources of aggregates can meet Ontario needs within the foreseeable future.

It is impossible to say how far in the future is proper, but the realities of demand forecasting would appear to indicate that 50 years, or even 25 years are well beyond our forecasting capabilities today. However the Working Party has observed that if the resources available in Southern Ontario could be increased by even a few percentage points then there need be no concern for the needs of the future. We have concluded that if all the policies enunciated in this report

are in fact put in place, public perceptions could change enough within the 10 or 20 years to alone provide for the needs of the future.

Basic to our proposed approach is an acceptance of increased resource utilization in the regions closest to markets and an equitable sharing of demand between producing areas.

The question is – how is a fair share to be established? – with equity! We acknowledge that prediction of demand is difficult, especially on a regional basis. In addition we know of no sound basis for allocating market demand.

But we conclude however that it should be possible to assume the current situation represents a fair approximation of the balance of supply and demand, and, by establishing both the productive capacity and the past production on a regional basis, to establish a regional target level of production. It should also be possible to project such data forward three years.

Clearly this is a provincial role.

It is proposed that the Ministry of Natural Resources would accumulate and publish annually the information relating to the number of licenced pits and their productive capacity within each region. The Ministry of Natural Resources would also establish a three year target for each region or county after consultation with that region or county using middle line straight line forecasting on past experience, adjusted by the known effects of proposed major construction projects. This three year forecast would be established as a measure of the need for aggregate production in a given region, against which the trend in licence capacity could be measured for adequacy.

So long as the licence capacity within the region was adequate the Minister of Natural Resources would have limited powers of granting additional licences until such time as the licence granting power was transferred to the regional council. These limited powers would relate to the need for mineral aggregates and any prohibitive conditions. On the other hand, once this power was transferred, the Minister of Natural Resources would only have power to override the regional or county council when it could be clearly demonstrated that licence capacity in the region would not meet the productive target for that region, using the need to meet Provincial policy objectives as his justification.

In short, so long as each region or county meets its share of provincial demand, based on present demand patterns, then it is the opinion of the Working Party that the decision should lie completely with the regional or county councils as to where and when and under what conditions licences are to be granted.

In fact the Minister of Natural Resources should also have the power and authority to order that a municipal official plan or by-law be amended to allow for aggregate extraction in regional or county municipalities which refuse to accept responsibility for a reasonable output of aggregate. The use of this power should not be necessary if the process described in Chapter 4 is followed.

However the Working Party believes strongly that such a concept will only be acceptable to the major producing areas in the Province if planning begins immediately to provide for the expanded needs of the Ontario economy after 1985.

Finally, it is the conclusion of the Working Party that provincial resources can meet the needs of the future, and that it clearly is the provincial responsibility to see that the demand is shared by all economically accessible production areas.

CHAPTER 4

THE PLANNING AND APPROVAL PROCESS

The available data as published by the Ministry of Natural Resources and as continued in the Proctor and Redfern Reports for Central, Eastern, and Southwestern Ontario, documents clearly the limits to Ontario's aggregate resources even given the 25 percent deduction in demand figures suggested in Chapter 3, the situation is still serious. While similar studies are required for other more remote areas of the Province, it is now possible to establish that such resources will not be available without more than doubling the existing price levels.

It is the thesis of this Working Party report that given adequate local involvement, and effective enforcement, it should be possible to prevent further encroachment of much of the remaining resources, and possibly in the future to reverse the trend as public confidence in the process is established. The following system is designed to establish as quickly as possible the extent of the remaining resources which can be extracted under socially acceptable conditions and to protect these resources as a source of Ontario's requirements for aggregates into the foreseeable future.

The Province would give the regional or county municipalities adequate geological maps describing the location of potential mineral aggregate deposits (both stone and sand and gravel) (see Appendix 3). The Province in cooperation with the regional or county municipalities must identify and establish mineral aggregate resource areas for possible future extraction adequate to meet future provincial demands. Once these areas are established and the provincial mineral aggregate resource management policy is put into effect, the official plan would then be amended by the regional or county council to reflect this policy incorporating the mineral aggregate areas as agreed.

The opinions expressed to the Working Party on the present approval process were unanimous in their condemnation of the time and expense involved. While most praised the efforts and impartiality of the Ontario Municipal Board, the costs of preparation were deemed excessive for the objectors and proposers

alike, while the delays in, and remoteness of, the decision-making process were persistently cited as disadvantages.

The Report of the Select Committee to the Ontario Municipal Board, 1972, indicates that the Ontario Municipal Board's function concentrates on: local government finance, plans of subdivisions, committees of adjustment, municipal structure and assessment. The Select Committee recommended:

All functions not dealt with specifically in this Report should be reviewed in detail, with the object of determining whether each power and function should be left with the Ontario Municipal Board, transferred to some other body or abolished.

The following suggests what would be a more accessible, responsive, open and less expensive process for licence approval.

IDENTIFICATION OF RESOURCES

If the mineral aggregate resources are to be properly identified it is recommended:

15. That the Province provide all designated regional or county municipalities with the basic surficial geological information on the location and extent of potential mineral aggregate deposits (both stone and sand and gravel).

Ref. 1, 8, 14, 15, 18, 21, 23.

The regional or county municipalities would then work with the Ministry of Natural Resources to determine which areas should be eliminated from these deposits because of physical conditions: roads, nearness to rivers and other water bodies, proximity to existing developed areas and other existing restrictions.

Other uses of land that would preclude the future extraction of mineral aggregates should be carefully considered and not permitted in high aggregate resource areas. Prohibited uses would include subdivisions, industrial development or more than four houses per 100 acres of land. Many other uses of land however, agriculture, forestry, parks or nature areas, would not preclude future aggregate extraction.

The Ministry of Natural Resources has recently established an inventory technique and applied to economic aggregate deposits in order to assign priority to these resources in selected areas in the province. The final priorities were assigned taking into account a combination of the following:

1. physical location of the deposit;
2. demand of various markets within an economic distance from the deposits;
3. quality and quantity of each deposit; and
4. depletion of mineral resources.

The Niagara Escarpment Planning Area for example is estimated to contain reserves in the range of 300 billion tons of aggregate. Of this total the Ministry of Natural Resources has specified approximately 40 billion tons as a high priority resource for long-range planning purposes. The immediate target was to ensure that at least 7 billion tons of industrial minerals remain accessible to the year 2001 in order to allow for variations in reserve quality and quantity.

It is recommended:

16. That the local and regional or county governments and the Ministry of Natural Resources confer on mineral aggregate extraction areas to be designated in official plans so that these resources are protected from major development which would preclude aggregate extraction.

Ref. 1, 4, 8, 10, 14, 17, 18, 20, 21, 23, 24.

The Working Party recognizes that in some parts of the Province, local municipal interests may not be fully represented by regional or county municipalities and therefore the Aggregate Advisory Committees are recommended, composed of local residents (see Chapter 2).

If a regional or county municipality believes that it requires additional geological information for quality or quantity reasons, or for their planning purposes, beyond the level of detail provided by the Province, then with the assistance of the Ministry of Natural Resources, the regional or county municipality may commission such information.

It must be freely acknowledged that the provincial objective in this process is the preservation and conservation of adequate aggregate resources for the future. The Working Party has examined this issue and concluded:

- that the major cost element in supplying aggregates to meet demands is the cost of transportation;
- that the closest zones of alternate aggregate supply sources (Prescott, Kirkfield, Grey County and underground mining) all involve costs at least double those from present sources;
- that other alternatives are likely to be even more expensive (see Chapter 3);
- that the planning and development of supply from alternate sources is likely to take many years;
- that any alternate sources of which we are aware appear to have concomitant environmental problems as real as those now being experienced today in existing supply areas;
- that therefore an essential element of any rational provincial policy must be the conservation of those resources still available for development adjacent to the markets.

The Working Party recognizes the complexity and difficulty inherent in this concept, but sees no other real choice. *Central to the recommendations of the Working Party is the assumption that given adequate and effective means for local input and involvement at all stages of planning approval and enforcement as set out here, then the public would accept the principle that each part of Ontario must bear a fair share of responsibility for the provincial economy.* We suggest that an essential element in the process is that once high aggregate areas are established and agreed to within the planning process then no development which would preclude extraction of the resource in the future, would be permitted in those areas. Alternatively as a precondition of such development, equivalent resources would need to be identified within the area and re-designated for extraction by amendment to the official plan as set out in recommendation 16.

We recognized that the rationale of this assumption requires the support of the *Ministry of Housing*, the municipalities, and the public and will pose a number of difficulties.

DESIGNATION OF RESOURCES IN OFFICIAL PLANS

The Province would make the information on mineral aggregate resource areas available to the regional or county municipalities and urge them to amend their official plans to incorporate a resource policy to protect resources from conflicting uses. All suitable land uses would continue until such time as the aggregate was needed in the future. Designation in the official plan would be recognition of the resources but before a new mineral aggregate area could be opened, a licence would have to be applied for under the new Aggregate Resource Management Act. This would be followed by consideration by the Aggregate Advisory Committee (AAC), where applicable, a public meeting, a decision by regional or county council, and a possible appeal to the Aggregate Resources Board for a hearing.

We have been much impressed in our public meetings by the open and receptive attitude of the concerned public. We have noted that most of the people affected live within five miles of the aggregate extraction areas. We have suggested that most of their concerns can be met effectively by holding public meetings as an essential part of the process of designating high resource areas in official plans. Preparing the material and presenting it at a public meeting is one of the most important roles that could be filled by an Aggregate Advisory Committee.

The Working Party notes that the current process to protect residents in areas not designated as mineral aggregate resource areas, is: that if a licence is sought in an area that lies outside the designated aggregate extractive area of the official plan, the applicant would need to obtain an amendment to the official plan and zoning by-law before an application for a licence could be submitted.

Pits and quarries are a land utilization requiring a licence to control the initial establishment as well as the operations and after-use of the land. With the existing by-law system under The Planning Act there is a double control which is redundant. At the present time there are problems related to the proof of the existence of a pit or quarry at the time of the passage of the by-law in order to establish a non-conforming exemption. Operators feel obligated to go on to a site each year to excavate and remove a few tons of aggregate in an attempt to maintain an existing exemption status with resulting disruption of land. Under the proposed procedure this would not be necessary, and a suggestion to eliminate the double control is given in Chapter 6.

Under our proposed procedure, no delegation of the authority to approve licences for new pits and quarries would be given to a region or county until their official plan had been amended to incorporate mineral aggregate extraction areas with supporting policies. In order to amend official plans to incorporate extractive areas and supporting policies, a council of the region or county should direct its planning staff to prepare an amendment. Staff would be requested to work with the Ministry of Natural Resources in the preparation of the document. The regional or county council would then consider the matter of amendment of the official plan.

Once the region or county council adopted the amendment, it would be submitted to the Minister of Housing for approval. The Ministry of Housing would

circulate the proposed official plan to various concerned Ministries for comments. At that time the Ministry of Natural Resources would review the section of the official plan related to the designation of mineral aggregate extraction areas and supporting policies to see if the region or county had incorporated sufficient extraction areas and policies. The Minister of Housing would not approve an official plan that does not incorporate sufficient mineral aggregate extraction areas, with supporting policies. Once approval was given by either the Minister of Housing or the Ontario Municipal Board, official plans for local municipalities would need to be amended accordingly.

Not all counties in the Province have established planning boards, planning staff or official plans. However, all areas of high aggregate production are included within regional governments or counties with established planning departments (see Map A, in back pocket, and Appendix 6). It is therefore recommended:

17. That those counties without established planning boards or staff be encouraged to establish a capacity for this purpose as soon as possible.

Ref. 4, 17, 22.

THE AGGREGATE RESOURCES BOARD

The Working Party reviewed the Ontario Municipal Board hearing process under the existing Pits and Quarries Control Act including several reports from the Board to the Minister of Natural Resources. The Working Party also examined the hearing officer approach of the Niagara Escarpment Planning and Development Act, the Environmental Assessment Board procedures and the concept of an Aggregate Resources Board.

The Working Party has strongly concluded that the Lieutenant Governor-in-Council should appoint a five-member Aggregate Resources Board to act as a hearing board for cases under the new Aggregate Resource Management Act. This appears to be the most acceptable alternative to the existing hearing mechanism. Members of the Aggregate Resources Board would fall into two categories:

1. technical — engineer, geologist, hydrologist, ecologist or related expertise or;
2. citizens, members of conservation organization or related group.

From submissions and comments made to us it is evident that the present system under the Ontario Municipal Board is seen as time consuming and lacking in input or expertise related specifically to pit and quarry operations. On the other hand, the efforts and impartiality of the Ontario Municipal Board were praised everywhere.

The Environmental Assessment Board members come from many parts of the Province but there is still a general lack of technical expertise. If new members with technical expertise were added to the Environmental Assessment Board, it could conceivably handle pit and quarry cases. The Working Party has decided, however, that an Aggregate Resources Board is the best solution. It is therefore recommended:

18. That an Aggregate Resources Board be established to hear appeals or objections under the new Aggregate Resource Management Act.
Ref. 1, 4, 15, 23, 24.
19. That if it is impossible for an Aggregate Resources Board to be established, new technical members be added to the Environmental Assessment Board to hear appeals or objections under the new Aggregate Resource Management Act.

ISSUANCE OF A NEW LICENCE AND REVIEW BY THE MINISTER

1. In counties and regions with no approved official plan incorporating designated mineral aggregate extraction areas and therefore no supporting policies (Figure 1).

Under the procedures suggested by the Working Party, an application to open a new pit or quarry would be submitted to the Ministry of Natural Resources. The Ministry of Natural Resources would have the authority to turn back an application if it was not completed satisfactorily. An application would not be accepted until the proper zoning on the property was given. When the Ministry of Natural Resources had the application with all the details, information and reports completed, it would be made available to all local citizens or councils in the office of the local municipal clerk and the District and Regional offices of the Ministry of Natural Resources. The applicant would put a notice of application in the local papers and inform all residents living within 1000 feet of the proposed pit or quarry. If no written objection was received within 30 days, a licence would be granted with conditions drawn up by the Ministry of Natural Resources.

If there were written objections, the Minister of Natural Resources would refer the application to the Aggregate Resources Board (ARB) or its equivalent for a hearing. Notice of reasons for objections would be made available to the applicant. The Board would appoint a time and place for the hearing and give reasonable notice thereof to the operator; the Minister of Natural Resources, the regional or county council, the public or any person who has made a written objection, to such other persons as the Minister of Natural Resources may consider necessary or advisable and such other persons as the Board considers proper. The Board would hold the hearing, within 30 days after the notices are issued.

The Working Party is concerned that the provisions of Section 6 of The Pits and Quarries Control Act be adequately covered by any new legislation. Therefore, the Aggregate Resources Board should consider any or all of the following matters in establishing any necessary conditions related to the opening, establishment or operating of a pit or quarry;

1. the adaptability of the site to the character of the surrounding environment;
2. the need for mineral aggregates both locally and provincially;

3. the geology including the quality and quantity of mineral aggregate on the site;
4. truck haulage routes and traffic density in the area;
5. any possible effects on ground and surface water patterns;
6. any related planning and land use considerations including nearby communities and surrounding residents;
7. any operational aspects; and
8. rehabilitation plans for the site.

The Board would hold the hearing in the manner as specified under The Statutory Powers Procedure Act and make a decision as to whether or not a licence should be issued. If a licence is to be issued, the Board may indicate what conditions, if any, would be added to the licence. This decision would then be submitted to the Minister of Natural Resources within 30 days after the termination of the hearing for review. Notice of the Board's decision would go out to all parties to the hearing and to the regional or county council.

The Minister of Natural Resources after reviewing the Aggregate Resources Board decision would determine whether to:

1. issue a licence
2. issue a licence with terms and conditions as the Minister of Natural Resources considers necessary to carry out the purpose of the Act requiring or specifying:
 - (a) methods of operation and phasing;
 - (b) actions to prevent, mitigate or remedy effects of the operation on the environment;
 - (c) research, investigations, studies and monitoring programs related to the operations or after-use as necessary;
 - (d) changes in the operations considered necessary;
 - (e) that the operator must comply with all or any provisions of the site plans as accepted by the Minister of Natural Resources,
3. refuse to issue a licence or;
4. require a new hearing in whole or part, on the basis of need or vexatious or prohibitive conditions.

In determining what course of action to take the Minister of Natural Resources would consider the purpose of the new Aggregate Resources Management Act including:

1. need for mineral aggregates and
2. vexatious or prohibitive conditions.

The Minister of Natural Resources would give notice of his review, together with written reasons to any person who has made a written objection to the Minister of Natural Resources or such other persons as the Minister of Natural Resources considers necessary or advisable.

It is recommended:

- 20. That in counties and regions with no approved official plan incorporating designated mineral aggregate extraction areas and therefore no supporting policies, the Minister of Natural Resources make the decision or on appeal the Aggregate Resources Board make the decision reviewable by the Minister of Natural Resources, as to whether or not a licence for a new pit or quarry be issued and stipulating any necessary conditions to be attached to the licence if it is to be issued.**

Mineral Aggregate Policy

Figure 1 — Process for licensing new pits and quarries in counties and regions with no approved official plan incorporating designated Mineral Aggregate Extraction Areas and therefore no supporting policies.

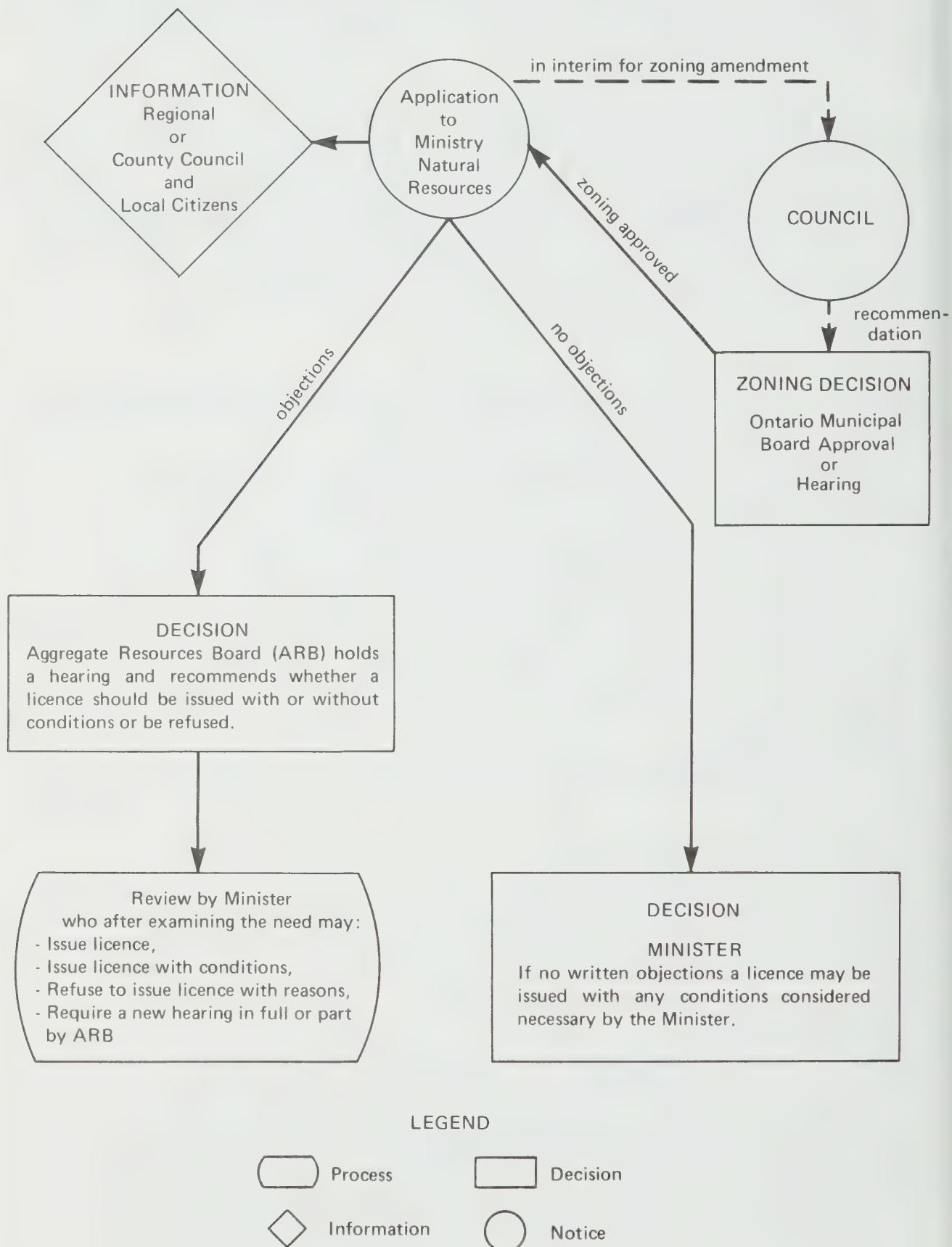
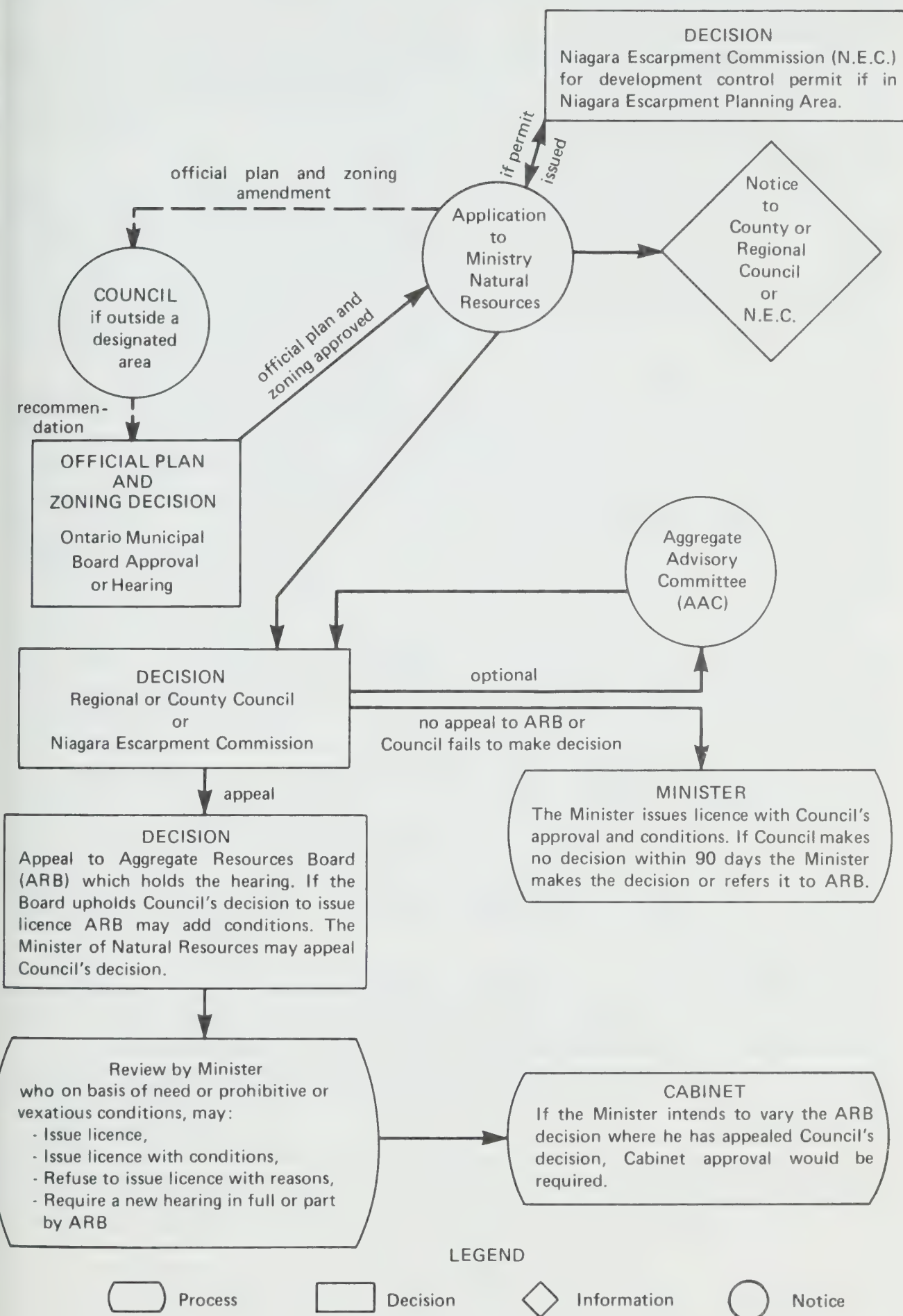


Figure 2 — Process for licensing new pits and quarries in counties and regions with an approved official plan incorporating designated Mineral Aggregate Extraction Areas with supporting policies.



2. In counties and regions with an approved official plan incorporating designated mineral aggregate extraction areas, with supporting policies (Figure 2).

Under our proposed procedures, an application to open a new pit or quarry would be submitted to the Ministry of Natural Resources. As soon as the application was received by the Ministry of Natural Resources, a notice would be given to the regional or county council. The Ministry of Natural Resources would have the authority to turn back an application if it was not completed satisfactorily.

In the Niagara Escarpment Planning Area, an application for a licence under the new Act would not be accepted until the applicant has received a development control permit from the Niagara Escarpment Commission.

When the Ministry of Natural Resources had received the application with all the details, information and reports completed, it would be submitted to the regional or county council or the Niagara Escarpment Commission in the Niagara Escarpment Planning Area.

It should be noted that the Niagara Escarpment Commission is being treated throughout this report as if it were equivalent to a regional or county council. If the government decides to maintain the Niagara Escarpment Commission, after its plan has been approved, then authority would be delegated to the Commission to decide on whether a licence should be issued or not, if it incorporates mineral aggregate extraction areas with supporting policies in its plan. This would mean that regions or counties lying partly within the Niagara Escarpment Planning Area, would only be responsible for mineral aggregates outside this area.

The applicant would put a notice of application in the local papers and inform all registered landowners living within 1000 feet by registered letter of the proposed pit or quarry. All reports and information would be filed with the regional or county council or the Niagara Escarpment Commission where applicable and would be available to local citizens at the office of the municipal clerk and the District and Regional Offices of the Ministry of Natural Resources.

The regional or county council or the Niagara Escarpment Commission would have the option of setting up an Aggregate Advisory Committee (AAC) to assist council or the Commission in its decision. The Working Party believes that it should be mandatory for any region or county and the Niagara Escarpment Commission, to establish an Aggregate Advisory Committee, if the annual production level exceeds 5 million tons.

The Aggregate Advisory Committee would assist council in reviewing the licence application information including a possible public hearing held by the council to make available all the pertinent information and to seek views of local residents. The Aggregate Advisory Committee would also be involved in the annual review of any problem licences with the Ministry of Natural Resources regional mineral resources supervisor and the periodic review of site plans as outlined in Chapter 2.

The council would have 90 days from the receipt of the application by the Ministry of Natural Resources, in which to review the application and documents, to hold a public meeting where appropriate, to seek the advice of the Ag-

gregate Advisory Committee, if one has been established and to make a decision as to whether or not a licence should be issued. If the licence is not to be issued, the reasons must be given. If the licence is to be issued, any conditions must be given. If the council fails to make a decision within 90 days, the application would be referred automatically to the Minister of Natural Resources for a decision in lieu of council. The Minister of Natural Resources would then either make the decision or refer it to the Aggregate Resources Board for a hearing.

If the council decides that a licence should be issued and there is no appeal to the Aggregate Resources Board by notice to the Minister, within 30 days of the notice of council's decision - the licence is issued by the Minister of Natural Resources with the conditions established by council. The council might require, for example, the use of certain haul routes, maintenance of roads, or special hydrological or rehabilitation measures - and these would be added as conditions to the licence.

If the council's decision is appealed to the Aggregate Resources Board by notice to the Minister of Natural Resources within 30 days of the notice of council's decision, the Minister of Natural Resources must refer the case to the Aggregate Resources Board for a hearing. The Minister of Natural Resources may also appeal the council's decision to the Aggregate Resources Board. The Aggregate Resources Board would appoint a time and place for the hearing would give reasonable notice as outlined previously and would hold the hearing within 30 days after the notices are issued.

The Aggregate Resources Board would then proceed as set out in the previous section and the Minister of Natural Resources would review the Aggregate Resources Board's decision.

Where the Minister of Natural Resources believes that the provincial need for mineral aggregate has not been fairly addressed by council, or the conditions are vexatious or prohibitive, he may appeal a council's decision to the Aggregate Resources Board. In this case the Aggregate Resources Board decision would be reviewed by the Lieutenant Governor-in-Council or such Minister of the Crown as the Lieutenant Governor may designate within 30 days after receipt or such longer period as may be determined by the Minister of Natural Resources. Where the Minister of Natural Resources does not appeal the council's decision, he would review the Aggregate Resources Board's decision on the basis of need for mineral aggregates and vexatious or prohibitive conditions.

It is recommended:

21. That in counties and regions with an approved official plan incorporating designated mineral aggregate extraction areas, with supporting policies, the regional or county council make the decision as to whether or not a licence to operate a new pit or quarry be issued and stipulating any necessary conditions to be attached to the licence if it is to be issued.

Ref. 2, 14, 18, 21.

CHAPTER 5

ABANDONED PITS AND QUARRIES

In the Ministry of Natural Resources Central, Eastern and Southwestern Regions, there are estimated to be 28,500 acres of disturbed land representing 1200 pits and quarries. The average size of these disturbed areas is 24 acres. (There are over 2100 pits and quarries to be licenced if the three Ministry of Natural Resources Southern Regions are totally designated under the new Act.) While it is still impossible to give accurate figures, a very high proportion of these disturbed areas are abandoned pit and quarry sites.

One of the major problems connected to rehabilitating abandoned pits and quarries is the fact that they are on private land and it is difficult to get access to the land to rehabilitate unless the site is licenced for extraction. Funding for rehabilitating these sites has also not been available in the past.

There are several reasons why pits and quarries are abandoned: a lack of demand in the surrounding area, the low quality or quantity of the aggregate, the licensing system and exhaustion of the pit or quarry. Much of the land now derelict was worked in the days when no rehabilitation measures were required.

We consider an abandoned pit or quarry to be a site that has been inoperative for a two year period and we believe that there are both physical and social benefits in rehabilitating these sites.

JUSTIFICATION FOR ABANDONED PIT

AND QUARRY REHABILITATION

As far as the vast majority of abandoned pits and quarries are concerned, they will never be completely depleted or rehabilitated to some useful purpose unless some form of financial incentive is offered. A decision as to whether or not

rehabilitation is justified can only be taken in the context of each individual case and there is necessarily a substantial element of subjective judgement involved. The location and appearance of the land are important factors - derelict land may not justify rehabilitation in remote rural areas, in areas which are otherwise unobtrusive and possibly on sites where rehabilitation would make an unduly large demand on resources having regard to the benefit which would be obtained. We believe that the Aggregate Advisory Committee could be of real assistance to regional, county and local municipalities in considering these matters.

It is therefore recommended:

22. That abandoned pits and quarries on main roads be given priority for rehabilitation, but that the final determination of priorities be the responsibility of the regional or county municipality, in consultation with the local municipality.

Ref. 1, 4, 7, 12, 13, 16, 17, 18, 19, 21, 23.

REHABILITATING SMALL ABANDONED PITS AND QUARRIES

There are many small abandoned pits and quarries that still have mineral aggregate remaining in them. It is our opinion that these small pits and quarries should be totally extracted and rehabilitated wherever possible. Contractors or operators would have to accept the responsibility for reasonable rehabilitation (mainly, sloping, seeding and tree planting) of the entire abandoned pit or quarry area. Under these circumstances, the contractor or operator would be eligible for a financial incentive from a fund established expressly for the rehabilitation of old extractive areas. At the outset it would be necessary to determine the percentages of the rehabilitation to be paid by the contractor and by the government fund.

It is therefore recommended:

23. That wayside permits and Class S licences be encouraged in abandoned pits and quarries where there is mineral aggregate remaining to be extracted.

Ref. 9, 14, 18.

The Working Party has concluded that it would be desirable if each region or county conducted a survey of all abandoned pits and quarries and, assisted by the Ministry of Natural Resources staff, prepared a report of candidate properties for rehabilitation. The regional or county council in consultation with the local municipality would set the priorities for the properties and the Ministry of Natural Resources would earmark the money from the fund and manage the rehabilitation program.

The landowner of a site recommended for rehabilitation would be advised of the funds available to rehabilitate the abandoned pit or quarry property. If he agreed to have the rehabilitation completed, he would enter into an agreement with the region or county to allow access to his property for rehabilitation and to repay the rehabilitation costs to the rehabilitation fund if he sells the property within 10 years.

We have also recognized that some landowners may not want their land rehabilitated and as a result rehabilitation may have to await a new landowner. Hopefully, with this type of financial incentive, many other landowners should support having abandoned pit or quarry areas on their property rehabilitated.

It is the opinion of the Working Party that funds for rehabilitating abandoned pits and quarries should be provided from monies collected from licence fees. This suggestion will be expanded on in detail in Chapter 8.

It is recommended:

- 24. That a Provincial Rehabilitation Fund be established for abandoned pits and quarries from the annual licence fees, and that 10 percent of the licence fee be provided for that purpose to the fund.**

Ref. 7.

Care should be taken to ensure that landowners whose property value is enhanced by the rehabilitation of abandoned sites should not profit unnecessarily at the taxpayers expense when the land in question is sold.

It is recommended:

- 25. That the property owner be required to repay the costs of rehabilitation of the abandoned pit or quarry, if the land is sold within 10 years of the completion of the rehabilitation. If the land is not sold within 10 years the rehabilitation grant should be forgiven.**

Ref. 4, 12, 17, 18.

Implicit in this recommendation is that a notice of incumbency would be placed on the title of the land.

CHAPTER 6

CONFLICTING AND OVERLAPPING LEGISLATION

In reviewing the various pieces of legislation affecting the operation of pits and quarries, the Working Party noted and was reminded on numerous occasions that the process is costly, cumbersome and sometimes ineffective. We have concluded that this is largely due to conflicts brought about by overlapping jurisdictions.

In considering how the process could be streamlined, we have concluded that this can best be done by assigning the responsibility for pits and quarries to the lowest level of government at which it can be discharged effectively. As explained in Chapter 2, the regions and counties have the staff and support services to cope with the work involved in matters relating to pits and quarries. The Working Party believes that the regional or county level of government is the most suitable. We would suggest this should be reflected in legislation and that the objectives of presently related legislation should be incorporated into, and consistent with, a single Act to cover pits and quarries.

In order to have a workable mineral aggregate policy which in turn would ensure maximum benefit by way of aggregate supply, to the people of Ontario at acceptable social, environmental and dollar costs, it is the opinion of the Working Party that existing conflicting and overlapping legislation must be amended. In addition, the jurisdiction and responsibilities of provincial and municipal governments must be clarified.

In proposing one piece of legislation, a new Aggregate Resource Management Act, the Working Party is suggesting a process which would cover many of the relevant provisions of other Acts. One Act could, with the involvement of local people and the mineral resources supervisor, effectively cover the majority of the requirements of the other Acts currently affecting the extraction of aggregates, provided that provincial policy establishes the precedence. In order to illustrate the proposed approach, we will go through each relevant Act and point out the amendments and repeals which we suggest are necessary to accomplish this objective. *These amendments and repeals would only apply to areas designated under the new Act.*

THE PLANNING ACT

Section 35(1)1 of The Planning Act allows municipal councils to pass by-laws prohibiting the use of land for purposes specified within any defined area. At the present time, in accordance with the Ontario Supreme Court decision - Uxbridge Township vs. Timbers Brothers Sand and Gravel Ltd., land-use zoning does not apply to pits and quarries since they have been ruled a consumption of land and not a *use* of land. This decision appears to have caused great confusion and concern in some local municipalities as to the legality of their present zoning by-laws, which have dealt with pits and quarries as a use of land. It is further noted that many official plans purport to treat pits and quarries as a use of land.

It is therefore recommended:

- 26. That The Planning Act be amended to define the making of a pit or a quarry as a use of land within the meaning of Section 35(1)1 of The Planning Act.**

Ref. 1, 22.

Section 35(1)6 of The Planning Act allows municipal councils to pass by-laws prohibiting the making or establishment of pits and quarries within the municipality or within any defined area.

It is recommended:

- 27. That if the making or establishment of pits and quarries is defined as a use of land then Section 35(1)6 be repealed since it would then be redundant.**

Ref. 1, 19.

- 28. That in order to avoid duplication of control, The Planning Act be amended to provide that where the new Aggregate Resource Management Act is in effect, in regions and counties with approved official plans incorporating designated mineral aggregate extraction areas with supporting policies, local zoning by-laws cease to apply to the control and location of pits and quarries.**

Ref. 1, 19.

This would allow official plans to set policy with control and regulation exercised by the licensing system (see Chapter 4). Effective control of pits and quarries would be via the new Aggregate Resource Management Act, the official plan, the region or county council, and the Aggregate Resources Board. In areas where the new Aggregate Resource Management Act was not in effect municipalities could still pass by-laws under Section 35(1)1 of The Planning Act.

Section 35(2) of The Planning Act states that any by-law passed under Section 35 may prohibit or regulate all or any matters mentioned in subsection 1. The power to prohibit pits or quarries in regions and counties with approved official plans incorporating aggregate extraction areas would conflict with the scheme of the new Aggregate Resource Management Act. Similarly since the regulations of pits and quarries is intended to come under the exclusive jurisdiction of the new Act in all areas of the Province where it is operative, any duplication of regulatory power could lead to a direct conflict between The Planning Act and the new Act.

It is therefore recommended:

29. That Section 35(2) of The Planning Act be amended to remove municipal power to prohibit pits and quarries in regions and counties with approved official plans incorporating designated mineral aggregate extraction areas with supporting policies and to remove any municipal power to regulate pits and quarries in any municipality of the Province coming under the jurisdiction of the new Aggregate Resource Management Act.
Ref. 1, 16, 19.

THE MUNICIPAL ACT

Section 354(1) 123 of *The Municipal Act* allows local municipal councils to regulate the operation of pits and quarries within the municipality. The new Aggregate Resource Management Act would incorporate strict regulations covering pits and quarries, and control would be exercised through the site plans (see Chapter 7).

It is therefore recommended:

30. That The Municipal Act be amended to provide that Section 354(1)123 may be applied by a local municipality only where the new Aggregate Resource Management Act is not in effect.

Also special conditions related to some particular problem of a site, not included in the regulations to the new Act, could be attached to a new property (see Recommendation 46).

These conditions would be worked out and agreed upon by the local municipal council, the regional or county council, the Aggregate Advisory Committee and the operator in the new licence approval process.

Pre-existing standards on operation must be upgraded to meet new provincial standards and local concerns. All existing licences would have to be upgraded, primarily through the filing of new site plans. These new site plans would be updated to conform to the standards of the new Act over a 3 year period (see Recommendation 45). If a local municipality considered that certain existing licences should be considered for updating, and/or that specific operating conditions should be added to the licence, they would notify the regional mineral resources supervisor to this effect, as explained in detail in Chapter 7.

Section 354(1) 122 of *The Municipal Act* provides that where, prior to January 1st, 1959, the use of land in any area of a municipality was restricted to residential or commercial use a municipality may, through a by-law, prohibit the carrying on of the operation of a pit or quarry in the area. This gives a municipality limited power to prohibit pits and quarries and would be unnecessary in view of the procedures under the new Aggregate Resource Management Act.

It is therefore recommended:

31. That Section 354(1) 122 of The Municipal Act be amended to limit its application to regions and counties not having approved official plans incorporating mineral aggregate extraction areas and therefore no supporting policies.

THE NIAGARA ESCARPMENT PLANNING AND DEVELOPMENT ACT, 1973

The purpose of the Niagara Escarpment Planning and Development Act, 1973 is:

to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment.

Section 8 of the Act goes on to say

In preparing the Niagara Escarpment Plan, the objectives to be sought by the commission in the Niagara Escarpment Planning Area shall be,

- (a) to protect unique ecologic and historic areas;
- (b) to maintain and enhance the quality and character of natural streams and water supplies;
- (c) to provide adequate opportunities for outdoor recreation;
- (d) to maintain and enhance the open landscape character of the Niagara Escarpment insofar as possible, by such means as compatible farming or forestry and by preserving the natural scenery;
- (e) to ensure that all new development is compatible with the purpose of this Act as expressed in section 2;
- (f) to provide for adequate public access to the Niagara Escarpment; and
- (g) to support municipalities within the Niagara Escarpment Planning Area in their exercise of the planning functions conferred upon them by The Planning Act, 1973, c 52. s.8.

The opening and working of pits and quarries in the Niagara Escarpment Planning Area was regarded from the outset as a matter that required special attention. The following is an extract from the Government Policy Statement "Development Planning in Ontario; The Niagara Escarpment" of June 1973:

PLAN IMPLEMENTATION: PITS AND QUARRIES

Perhaps no other issue has received more public attention along the Escarpment than the question of the proper role for pit and quarry operations. This issue will be an important element in the implementation of any plan to preserve the Niagara Escarpment.

As pointed out by the Task Force, guidelines relating to pits and quarries must take into account the importance of the Escarpment as a source of construction material. In 1969, consumption of sand, gravel and stone in the Toronto-Centred Region totalled more than 50.2 million tons, and the rate of consumption was increasing faster than the rate of population growth. The availability of such materials is essential to continued development in Central Ontario. In that portion of the Escarpment extending from Saltfleet Township to Collingwood, aggregate production represents more than 35 percent of all aggregate used in the Central Ontario Region.

But aggregate production is, by its very nature, disruptive to the natural environment. No amount of 'cosmetic surgery' during or after production can hide the fact that a pit or quarry is incompatible with the accepted policy of preserving the Niagara Escarpment. How then does one reconcile the overall policy with the need for Escarpment aggregate materials? This is a question which the Task Force has considered carefully. A series of recommendations have been made, and are accepted by the Government as policy for the Escarpment.

The Policy which the Government will adopt on pits and quarries will have the following features:

- (a) Within the Niagara Escarpment planning area, the Government will establish a 'Pits and Quarries Restrictive Zone'. Within this zone, new pits or quarries – including wayside pits – will be prohibited. The Niagara Escarpment Task Force has outlined a proposed restrictive zone shown on a

map attached to this Statement. This zone has been delineated on the basis of prominent topographical features associated with the Escarpment, unique and scenic areas and recreational sites. As an interim measure, the Government is adopting the restrictive zone as recommended, and will issue no new permits within this area. The restrictive zone will be reviewed by the Niagara Escarpment Commission as part of its planning program, and any necessary changes will be made when the master plan for the Escarpment is adopted.

(b) Within the 'Pits and Quarries Restrictive Zone', if a licensed pit or quarry is found, by the Niagara Escarpment Commission, to be in serious conflict with the goals and objectives for the Escarpment, the Government will work with the operator to seek an alternative location. This might necessitate the construction of access roads, aid in assembling land, and freight cost assistance. The old site would be rehabilitated by the operator and turned over to an appropriate government agency.

(c) To protect the Escarpment's valuable mineral resources the Niagara Escarpment Commission will be asked to designate 'Mineral Resource Areas' in the Escarpment corridor. New pits and quarries will be permitted in these areas under standards to be defined in the master plan for the Escarpment.

Finally, the Task Force has recommended that changes be made in The Pits and Quarries Control Act to simplify permit procedures for small operators producing less than 10,000 cubic yards per year. The Task Force also recommends the publication of a booklet explaining in simple language the complex regulations under The Pits and Quarries Control Act. The Government accepts both these recommendations and will take appropriate action.

It is recommended:

32. That aggregate production from the Niagara Escarpment Planning Area be maintained in the future to the extent possible within the objectives and restrictions of the Niagara Escarpment Planning and Development Act and the objectives of the new Aggregate Resource Management Act.

Ref. 10.

33. That the Niagara Escarpment Commission designate mineral aggregate resource areas with supporting policies in its plan so authority could be delegated to the Commission to approve licences for operations of pits and quarries similar to the system proposed for regions and counties, if the Government decides to retain some type of commission or body for the Niagara Escarpment Planning Area.

Ref. 9, 10

This system should be acceptable to both the Commission and the Ministry of Natural Resources and should avoid the conflicts that will inevitably result if the present system is maintained.

THE ENVIRONMENTAL ASSESSMENT ACT, 1975

The intent of this Act is to provide for control over environmental problems. Under the proposed new Aggregate Resource Management Act, an application for a new licence would be accompanied by a statement of the environmental impact of the proposed pit or quarry. This environmental impact statement would result from consideration of all the alternatives concerning the environment. If our suggested approach is adopted the Ministry of the Environment would be asked to work closely with the Ministry of Natural Resources in drawing up the necessary guidelines.

It is therefore recommended:

- 34. That pits and quarries be exempted from the provisions of The Environmental Assessment Act since the new Aggregate Resource Management Act will contain equal environmental requirements to be applied to pits and quarries.**

THE ENVIRONMENTAL PROTECTION ACT, 1971

This Act provides for the protection and conservation of the natural environment, that is air, land and water, and is applicable to existing pits and quarries. The aggregate industry is subject to the same regulations as any other industry concerning vibration, noise, dust and emissions. All environmental matters related to aggregate extraction have standards established consistent with The Environmental Protection Act and enforced by the Ministry of the Environment today on a complaint basis. We suggest that these standards be embodied before the fact in the site plans and operating conditions and be administered by the Ministry of Natural Resources staff with the support of the Ministry of the Environment as requested. Powers of suspension of the licence would then be applicable as set out in Chapter 7 and prosecution under The Environmental Protection Act could also continue.

It is therefore recommended:

- 35. That The Environmental Protection Act continue to apply to the aggregate industry for the purposes of controlling and setting standards for noise, vibration, dust, emissions, and other related matters, but be established before the fact in the site plans and in the operating conditions.**

Ref. 2, 18.

THE ONTARIO WATER RESOURCES ACT, 1970

The purpose of the Act is to supervise all surface waters and ground waters in Ontario. This includes water pollution, water wells, permits to take water, protection of public water supply and alterations to water systems. This Act does not conflict with the existing Pits and Quarries Control Act and is enforced by the Ministry of the Environment today on a complaint basis. Again we suggest that these standards be embodied before the fact in the site plans and operating conditions, using the same procedure as outlined from The Environmental Protection Act above.

It is recommended:

- 36. That The Ontario Water Resources Act be maintained as the controlling legislation over surface water and ground water as it is affected by pit and quarry operations.**

Ref. 12.

THE TREES ACT

The Trees Act, Section 4 allows any municipality to introduce by-laws restricting and regulating the destruction of trees by cutting, burning or other means. In practice this has been used in some areas to prevent aggregate extraction from sites licensed under The Pits and Quarries Control Act, 1971. We note that the objectives of these by-laws could be achieved through the use of site plans containing provisions for ultimate replacement of the trees. As far as the priority between trees and mineral aggregates is concerned, the Working Party notes that the former are renewable resources and the latter are non-renewable resources.

It is therefore recommended:

- 37. That The Trees Act be amended so that Section 4 does not apply to pits and quarries, on the basis that control will be achieved through the site plan approval process.**

TOPSOIL

The Working Party has become aware of some very immediate concerns regarding topsoil. Most aggregate extraction areas are covered by very limited amounts of topsoil and overburden because of the local geology. The removal of topsoil is thus a real problem in certain areas and should be controlled. We are informed that topsoil is being stripped off the land not only as a source of revenue but also to facilitate rezoning by changing the agricultural classification of the land involved. We are advised that The Minister of Agriculture and Food and The Treasurer of Ontario are in the process of formulating legislation to control topsoil removal.

In order to achieve consistency and absolute control over this problem it is recommended:

- 38. That no topsoil be removed from any licenced property. That legislation be passed to allow municipalities to control topsoil removal except on licenced pit or quarry areas.**

Ref. 14, 17, 18, 21, 24.

THE MINING ACT

The Working Party has noticed that potential conflicts of legislation occur even within the various pieces of legislation administered by the Ministry of Natural Resources.

For example, present legislation, depending on legal interpretation, could require any person wishing to operate a pit or quarry on Crown land to first obtain a quarry permit under the terms of The Mining Act and then to obtain a second permit under The Pits and Quarries Control Act.

The Mining Act is currently being revised, as it relates to Crown property, and will be separated into two Statutes – one relating to exploration (the proposed Mining Land Act) and the other relating to safety (the proposed Mining Safety Act).

At the present time, operators of pits or quarries on Crown land in recently designated areas under The Pits and Quarries Control Act are required to obtain only quarry permits in accordance with the terms of The Mining Act. The quarry permit is issued with certain terms and conditions aimed at bringing their operation in line with permits issued under the terms of The Pits and Quarries Control Act. On Crown land in non-designated areas, the terms of The Mining Act apply only.

Application of both Acts in areas designated under The Pits and Quarries Control Act and containing tracts of Crown land could lead to a duplication of conditions and controls as well as confusion in the minds of the public as to the requirements of both Acts. This was most emphatically brought to our attention in Sudbury.

In June, 1972, an Advisory Committee to the Minister of Natural Resources was formed to inquire into, investigate and make recommendations respecting The Mining Act, except Part IX. On February 18, 1974, the Committee handed down a number of recommendations to the Minister. Recommendation 63 based on the assumption that The Pits and Quarries Control Act would apply to Crown lands, stated:

The Pits and Quarries Control Act, 1971, be amended to exclude Crown lands, including lands under quarry permits, that quarry permits continue to be dealt with under The Mining Act and that The Mining Act provide for rehabilitation of such pits recoverable out of royalties levied for the purpose and that subsection 5 of Section 127 be amended to provide for terms up to a five year period.

Licence fees, rehabilitation security deposits and approval processes should be the same on Crown land as on private lands.

It is recommended:

- 39. That all pits and quarries on Crown lands in non-designated areas be regulated under the proposed Mining Lands Act and that any revision of The Mining Lands Act contain operating and rehabilitation conditions similar to those set out in the new Aggregate Resource Management Act.**
- 40. That all pits and quarries on Crown lands in designated areas be regulated in accordance with the new Aggregate Resource Management Act.**

Ref. 21.

These recommendations are in direct conflict with the recommendation of the Advisory Committee and would require a change in Part VII of The Mining Act.

Under our proposed procedures, pits and quarries on Crown land in designated areas would be administered under a single new piece of legislation, for all matters other than safety. The existing arrangement under The Mining Act would be used to control pits and quarries on Crown lands in non-designated areas. While the process of approval on Crown lands can quite obviously be much simpler, nevertheless we conclude that since extraction on Crown

lands will abut onto designated areas, the basic principles of rehabilitation must be approved by the local municipality and adhered to by the operator in both situations, and that a deposit guarantee must be an essential element in such legislation.

BEACH PROTECTION ACT

The purpose of this Act is to control:

the taking of sand from the bed, bank, shore or waters of any lake, river or stream or adjoining any channel or entrance to any lake, river or stream.

Since there is no real conflict or overlap associated with this legislation, we have concluded that there is no real need to incorporate this legislation into the new Aggregate Resources Management Act. The Beach Protection Act should continue to control the removal of sand from beaches in Ontario.

CHAPTER 7

LICENSING AND ENFORCEMENT

The Working Party has reviewed the history of The Pits and Quarries Control Act since it was first passed in 1971, and has heard much testimony to the effect that the Act is not being enforced. We have reviewed certain cases where enforcement action has been taken and have concluded that the problem lies in poor definition within the existing Act, in variations in the standards of the site plans accepted, in the lack of specific penalties, and, last but certainly not least, in a shortage of enforcement staff.

If the new Act is to be credible and achieve local acceptance, the following aspects must be addressed.

- Designation must be more widely applied.
- Enforcement of the new Act must be effective and rigorous.
- Definition of what constitutes an infraction must be clarified.
- All site plans must conform to much higher standards.
- Fines for non-compliance and operating without a licence must be high enough to act as a positive deterrent.
- The new Act must effectively set up methods of suspension of a licence for serious offences.
- Effective enforcement requires increased Ministry of Natural Resources staff.
- The Act must be applied to municipalities as strictly as to citizens or corporations.

DESIGNATION

We have reviewed the present state of designations (Map 1, back pocket) and have noted that the Ministry, after designating the whole of the Central Region, and selected high resource areas elsewhere, is resisting any further designation. We are told that this situation is not desirable, but is a necessity due to the limited staff resources available.

Under The Pits and Quarries Control Act, 268 townships (1500 pits and quarries) are now designated, primarily in the Central Ontario Planning Region. This Act only applies to those parts of Ontario designated by regulation. We believe that there is a need to designate all of the Ministry's Eastern, Central and Southwestern Regions plus certain urban areas in Northern Ontario to achieve uniform and acceptable standards in major extraction areas. In our opinion, the licensing of pits and quarries is the most effective means of controlling the operation and rehabilitation of any aggregate extractive site.

It is therefore recommended:

41. That all of the Eastern, Central and Southwestern Regions of the Ministry of Natural Resources plus major urban centres in Northern Ontario be designated under the new Act.

Ref. 2, 4, 7, 12, 14, 17, 18, 20, 23, 24.

SITE PLANS, LICENCE CONDITIONS AND ANNUAL REVIEW

During the public participation program conducted by the Working Party in the principle aggregate areas of the Province – ugliness of the abandoned and existing operations, the damage done to the environment, the final use of the property and truck traffic were identified as the chief concerns of the public in that order.

The first three concerns should be able to be effectively addressed through the involvement of the region or county in the setting and interpretation of operating standards, upgrading of site plan requirements, conditions of the licence, strong enforcement procedures and rigorous annual review of all licences. The final concern will be addressed later in this chapter.

The site plan is a keystone of the control process under both the present and proposed legislation. The site plans received for existing operations largely reflected existing practice, and often did not require progressive rehabilitation as a specific condition of the plan. It is clear that if the Act is to be enforceable and credibly administered, then standards must be uniformly applied and exceptions for pre-existing operations must cease.

As will be seen in the following chapter, the Working Party is suggesting that all licences be issued in nine classes to reflect the size of operations. We also propose the following process of relicensing all operations within the Province.

On passage of the legislation all licence holders would, within a set period of time, be required to apply for and receive a licence under the new Act. Each licence so issued would require the filing of a site plan acceptable to the local municipal council within a set period of time as a condition of the licence, on penalty of suspension.

The time provided should be staggered in order to keep the task within manageable levels for all concerned – local councils, industry, consultants and Ministry of Natural Resources staff. We propose therefore that the time limit allowed should be one year for the five largest classes of licence, and two years for the next two classes, and that all remaining licences be reviewed and approved within the third year. Thereafter we propose that all site plans should be reviewed by local council every five years.

In the process of review of a licence, it is strongly recommended that if progressive rehabilitation is not, or cannot be, a site plan condition, then the reasons for this would have to be submitted to and accepted by local council.

An operator may appeal a decision of council in this process to the Aggregate Resources Board.

The site plans for operations larger than 20,000 tons per annum should be prepared by one of the following: a Professional Engineer, a Professional Geologist, an Ontario Land Surveyor, a Landscape Architect, or other qualified professional as specified in the new Act.

We propose the following guidelines for site plan requirements:

- the extent and quality of the deposit including cross-sections of the geology;
- the area of licensed property and the area required for extraction;
- proposed extraction plan stages,
- progressive rehabilitation sequences;
- topography and contours before and after extraction;
- surrounding land uses, including building and structures with 500 feet of the proposed pit or quarry;
- all details of buildings and structures on the property;
- ground and surface water provisions;
- entrances and exits and setbacks;
- haul routes from the site;
- all screening of the site;
- such other information as the Minister of Natural Resources may require.

If the site plan for a small licence of less than 20,000 tons is not prepared by a professional as described above, it may be drawn by the applicant provided it is acceptable to and signed by the Municipal Engineer. The regional mineral resources supervisor or the Ministry of Natural Resources would provide forms and assistance.

We propose that the Ministry of Natural Resources would strictly control the maximum allowable tonnage on these small licences to 20,000 tons. If a project required the operator to increase his tonnage, the owner or operator would have to apply for and comply with the full requirements of larger tonnage licences. We suggest that as a minimum, these smaller sites be rehabilitated to their former use. For example, if the site was used for agriculture it would be returned to the same class of agriculture, or better (see Chapter 8).

Since licences will be classified on a tonnage limit, and since the necessary information on the licence reserves will be filed with the Ministry of Natural Resources, there will be a check or control on productive capacity for any local municipality. The Working Party proposes that all licences in classes A to H will be entitled to approval for one class higher by applying to the regional mineral resources supervisor of the Ministry of Natural Resources, provided that it can be accommodated within the accepted approved site plans, and that the additional fee is paid. An operator would only be entitled to a "one class higher" licence once in a five year period, without re-application to the Ministry of Natural Resources.

Present licenced properties, being held in reserve by the industry, with approved site plans for a large volume extract could be held as a Class S licence for up to ten years after the passage of the new Act. These sites could be authorized for large volume extraction upon payment of the larger licence fee to the Minis-

try of Natural Resources at any time within the ten years provided that it is recognized that the tonnage capacity in the approved site plans is included in the total licenced productive capacity figures for the local and regional or county municipalities.

The need for effective visual screening varies from site to site. Any special problems that arise related to screening should be considered by the Aggregate Advisory Committee where applicable or by the council and the mineral resources supervisor. A set of guidelines for visual screening of sites should be available including specifications and standards for various methods such as berming, tree planting, seeding, crop covers and fencing. The best method of screening could then be devised for each individual site. The differences in topography and terrain across the Province must be recognized and built into the site plan and screening techniques. Some sites are in valleys with adjacent roads at a much higher elevation, thus, no amount of visual screening could possibly completely buffer the extractive site. In these cases field crops at the front of the property may be the best solution. Another example that presents similar screening problems is extraction from a hill side or escarpment. In these cases a mutual agreement on screening would have to be worked out by the Aggregate Advisory Committee or regional or county staff and the operator as a part of the site plan prior to approval by council.

It is therefore recommended:

- 42. That all site plans for new properties be reviewed by the appropriate local municipal council and approved by regional or county council, if a licence is to be issued.**

Ref. 14, 22.

- 43. That all existing site plans for existing licences be reviewed by local council, and upgraded by class of tonnage within three years of the passage of the new Act or earlier upon request from the local municipality relative to specific licences.**

Ref. 2, 7, 12, 14, 18.

There are many site specific problems that make it impossible to cover all matters in the regulations to the new Act. Notable among these matters is truck traffic. As a result the Working Party has concluded that new properties to be licensed may require special conditions to control specific local problems.

As noted previously, truck traffic is a major local irritant. The Working Party has reviewed various ways of dealing with the problem. We are aware that effective January 1st, 1977, aggregate trucks operating in the Province will be required to be fully and effectively tarped. However, conditions should be attached to all new licences indicating the major haul routes to be used in delivery of the product from the source to the market. The operator would have to agree to control his truck traffic as set out in the condition of licence or face the penalty of suspension of the licence. Such conditions would be in addition to any of those outlined in Chapter 4 which were also deemed necessary.

It is therefore recommended:

- 44. That special conditions related to some particular problem of a site, not included in the regulations to the new Act, as necessary, be attached to any new licence.**

Ref. 17.

There would be an annual review of licences including site plans and conditions prior to the anniversary date of the licence by the Ministry of Natural Resources. This review would consider the progress on progressive rehabilitation and on instruction of council or on his own grounds, the regional mineral resources supervisor would bring to the attention of the regional or county council any licences not conforming to the site plans, conditions of the licence or the regulations of the new Act. Action would be taken against such operators either through fines or licence suspension.

FINES AND SUSPENSION

We have noted that, in levying fines under the present Pits and Quarries Control Act, the courts have dealt most leniently with offenders in some parts of the Province, due in part to the absence of specified minimum fines. It would appear to be essential that fines must be high enough to act as a real deterrent.

It is therefore recommended:

- 45. That any person who operates a pit or quarry and who contravenes any provision of the site plan, any term or condition of the licence or any requirement of the new Act or the regulations be liable to a fine of not less than \$250 per day up to a maximum of \$5000 per day for each day on which the contravention occurs or continues.**

On recommendation by the Aggregate Advisory Committee; or after inspection for contravention of any provision of the site plan, any term or condition of the licence or any requirement of the new Act or the regulations, the District Manager of the Ministry of Natural Resources in consultation with the mineral resources supervisor, would have the authority to issue a cease and desist order. This order would provide that upon failure of the licensee to take certain specified actions rectifying the contravention to the satisfaction of the mineral resources supervisor within seven working days, the licence would be automatically suspended.

The licensee would have the right to appeal the suspension to the Aggregate Resources Board within 15 working days of the issuance of the order. The Aggregate Resources Board would be required to decide whether the suspension should be continued or lifted. Failure of the licensee to appeal the suspension would mean that the suspension would continue until, in the opinion of the mineral resources supervisor of the Ministry of Natural Resources, full compliance with the order was achieved. If the suspension had not been lifted within one year the licence would be revoked.

It is therefore recommended:

- 46. That the Minister of Natural Resources have the authority to suspend a licence for contravention of any provision of the site plan, any term or condition of the licence or any requirement of the new Act or the regulations.**

Ref. 1, 23.

SECURITY DEPOSIT

The Working Party has also examined the effect of the security fee for rehabilitation under the present Act. As outlined in Chapter 2, we were forced to conclude that probably less than 10 percent of all areas excavated had been rehabilitated since 1971. We found sufficient evidence to conclude that many operators view the 2 cents per ton rehabilitation security fee as simply a tax, which they propose to forego and leave the task of rehabilitation to the Province.

We have estimated the cost of rehabilitation today to range from 0.1 cents to 5 cents per ton, or \$300 to \$1600 per acre. The Working Party has concluded that the deposit was intended to act as a significant incentive towards rehabilitation but has not worked and will not work until the deposit is increased. If the Province is to be adequately funded in cases where it is forced to enter and complete rehabilitation of abandoned sites, the security deposit must be increased. However, if an operator leaves a licenced site abandoned, provincial-municipal co-operation will be required to deal with the problem of rehabilitating the site with some assistance from the rehabilitation fund since, even with the major increase in the security deposit proposed, the deposit will seldom cover the costs of rehabilitating past extraction.

Therefore we recommend:

47. That the amount of the security deposit be equal to 8 cents per ton of material removed from the pit or quarry property in the previous calendar year.

Ref. 1, 7, 17, 18, 22, 23.

48. That where a pit or quarry is in operation and progressive rehabilitation has been carried out, the operator of the pit or quarry may file a claim for a rehabilitation refund for such amounts as are approved by the Minister of Natural Resources having been expended in progressive rehabilitation in the previous calendar year, and submitted by June 1st, provided the operator shall not be entitled to reduce the amount on deposit to less than \$300 for each acre still requiring rehabilitation.

DEFINITIONS

The Working Party has noted that there are so many problems of definition in the existing Pits and Quarries Control Act that extreme care must be taken in drafting definitions for the new Act. Some of the more difficult terms to define will be 'operating property', 'pit', 'quarry' and 'wayside pit or quarry'.

MINISTRY OF NATURAL RESOURCES STAFF REQUIREMENTS

At the present time, the Ministry of Natural Resources does not have sufficient staff to properly administer the existing Pits and Quarries Control Act in designated townships. Staffing has been a major problem since the Act

was first proclaimed in 1971, when two personnel were hired to administer the Act in forty-two townships. From time to time, new areas were designated and additional inspectors were hired. It was always a matter of too little, too late.

The Ontario Mineral Aggregate Working Party has heard many complaints with regard to lack of enforcement of the Act. While some of these complaints related to abandoned pits or quarries pre-dating the present legislation, or reflected the weakness in the present Act, many were justified. In most cases, we believe the problem is lack of staff to provide adequate coverage.

The Working Party has documented in Tables 5 to 8 and Maps 2 to 5, the numbers of staff and licenced pits in designated areas of the Province today, along with the following optional projections:

- OPTION 1 – Licences and staff required to administer the present Act in areas already designated plus certain high resource areas in the Province;
- OPTION 2 – Licences and staff required if all of the three southern regions of the Ministry of Natural Resources and selected urban areas in Northern Ontario were designated under the present Act;
- OPTION 3 – Licences and staff required if all of the three southern regions of the Ministry of Natural Resources and selected urban areas in northern Ontario were designated under the proposed legislation.

It is essential that sufficient trained staff be available to the public and municipalities if the goal of provincial-municipal co-operation is to be achieved. For this reason we have concluded that a mineral resources supervisor must be located in every Ministry of Natural Resources District Office in designated areas under the proposed Act. The staff levels proposed in all options are based on a minimum of one inspector or supervisor for every 80 pits; in Option 3 we have provided for the district mineral resources supervisor as suggested above, and for one head office person to be responsible for both data collection and the demand and supply forecasting that is essential to the goal of resource management.

We are convinced that there is no point in considering new legislation unless provision is made for sufficient staff to carry out effective consistent enforcement and to provide the liaison and management capability to deal with the local public. Furthermore we believe that what we propose is the least expensive way that control over the industry can be achieved.

It has been estimated that the cost to a regional municipality involved in licensing and policing pits and quarries would be \$40,000 (see Appendix 7). Obviously, the cost of control by a region or county would vary depending on the number of pits and quarries and the geographical area, however, it is felt that \$40,000 is a minimum figure. Therefore, if we had forty-five counties and regions each involved in licensing and policing, the minimum cost would be at least \$1.8 million.

Using the analysis outlined here, the cost of the Ministry of Natural Resources administering the Act, is estimated at \$1.5 million. The areas covered, distribution of staff and an estimate of pits to be inspected in each area are summarized on Maps 2 to 5.

It is the opinion of the Working Party that Option 3 represents a conservative estimate of the staff requirements to enforce the provisions of the new Act. Since this represents an estimated saving of 17 percent over regional or county enforcement, and since provincial enforcement is essential for consistency, we therefore recommend:

49. That The Ministry of Natural Resources be provided with sufficient staff and funding to effectively, consistently and credibly enforce the new Act, that is, 63 staff dedicated solely to the enforcement of the Act. Ref. 18.

Of these 63, a staff of 5 would be allocated to head office to monitor and control enforcement on a consistent province-wide basis, to ensure that proper guidelines and training programs are developed and made available to all inspection staff, and to gather the statistics and provide the supply and demand forecasts required by all municipalities. The balance of staff would be located regionally to be in close proximity to the operations and to the public most concerned. If the staff is provided and decentralized as we have suggested, we believe effective, consistent, and credible enforcement of the Act, at standards broadly acceptable to the public, can and will be achieved.

Mineral Aggregate Policy

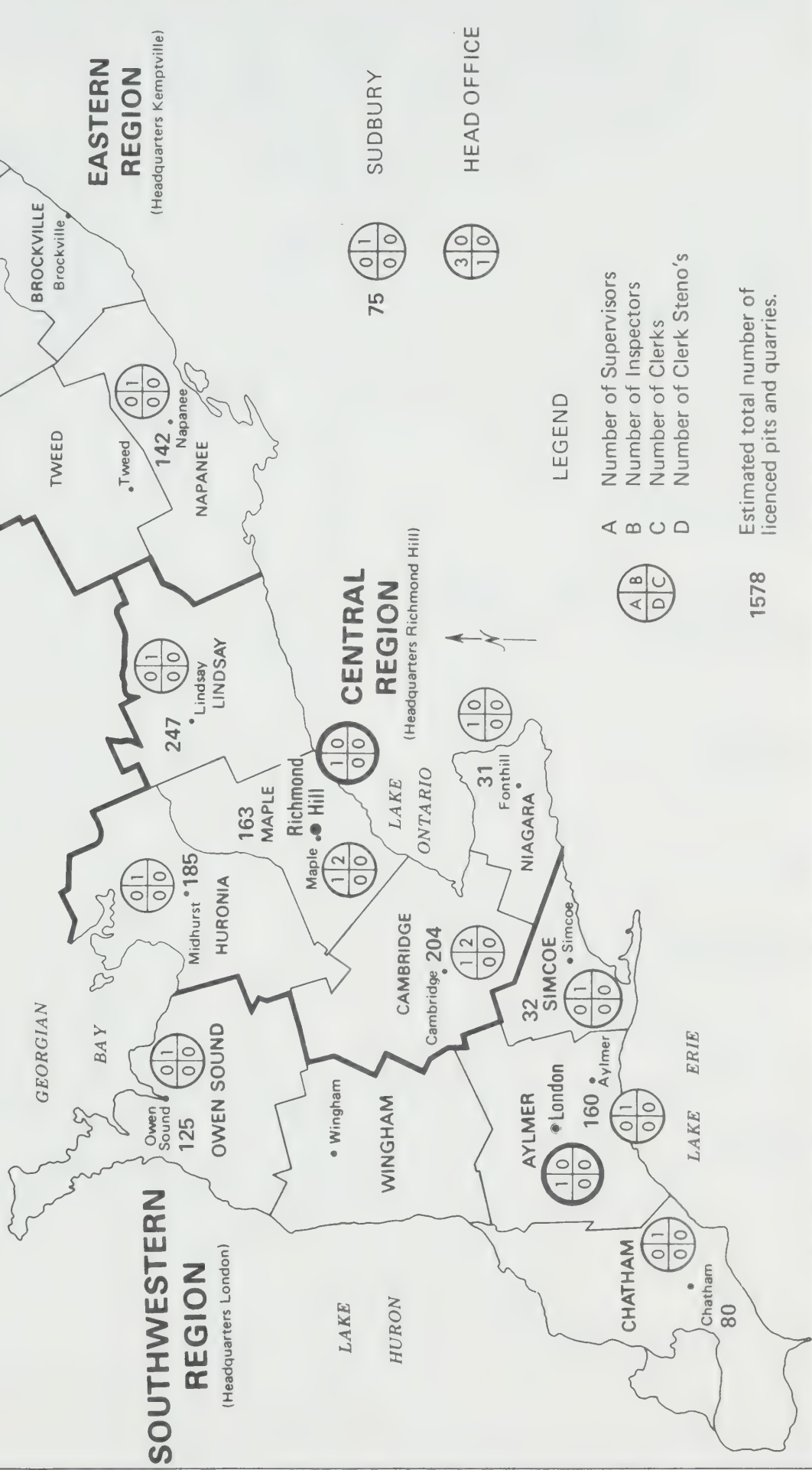
TABLE 5 | PRESENT SITUATION: MINISTRY OF NATURAL RESOURCES
STAFF TO ADMINISTER THE PITS AND QUARRIES CONTROL ACT.
PRESENT COMPLEMENT AND ANNUAL COST, SEPTEMBER 1976.

FIELD STAFF	TOTAL COMPLEMENT	AVERAGE SALARY\$	TOTAL\$
Co-ordinators	3	25,000	75,000
Supervisors	3	16,800	50,000
Inspectors	12	12,000	144,000
	18		269,400
Benefits at 11 percent			29,634
			299,034
Travel Expenses, Equipment, etc.			124,398
			423,432
Administration Costs at 5 percent			21,172
SUB TOTAL			444,609
HEAD OFFICE			
Engineer of Mines	3	25,000	75,000
Clerk Steno	1	6,960	6,960
	4		81,960
Benefits at 11 percent			9,016
			90,976
Travel Expenses, Equipment, etc.			18,000
			108,976
Administration Costs at 5 percent			5,450
SUB TOTAL			114,426
TOTAL	22		559,030

MAP 2

PRESENT SITUATION

September, 1976
Complement and Number of Licenced
Pits and Quarries



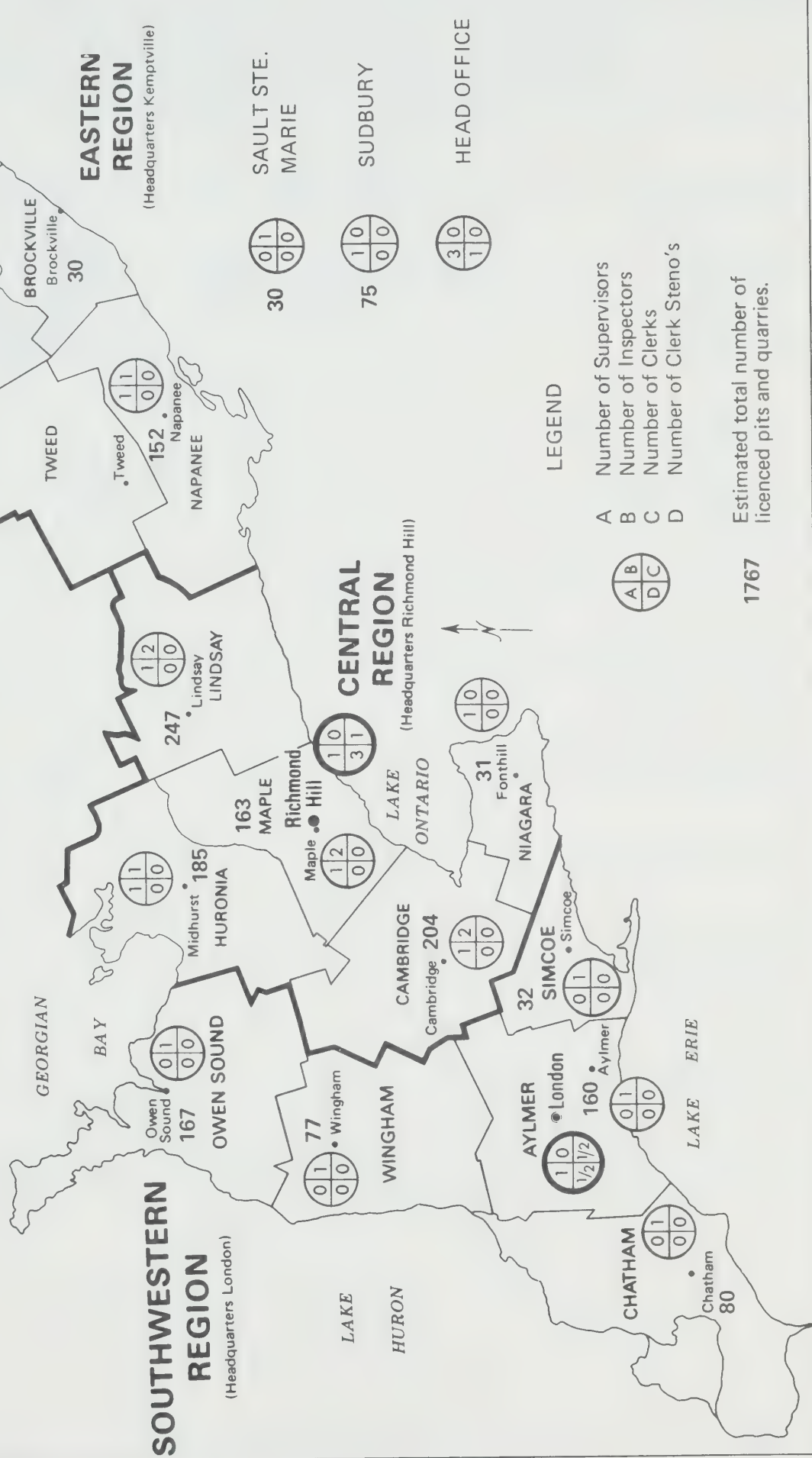
Mineral Aggregate Policy

TABLE 6

OPTION 1: MINISTRY OF NATURAL RESOURCES STAFF,
ESTIMATED COMPLEMENT AND ANNUAL COST TO ENFORCE THE
PRESENT ACT AND PROVIDE FOR STAFF TO ADMINISTER THE
ACT IN ADDITIONAL HIGH RESOURCE AREAS.

FIELD STAFF	TOTAL COMPLEMENT	AVERAGE SALARY\$	TOTAL\$
Co-ordinators	3	25,000	75,000
Supervisors	7	16,800	117,600
Inspectors	15	12,000	180,000
Accounting Clerks	2	8,100	16,200
Clerk Stenos	4	6,960	27,840
	31		416,640
Benefits at 11 percent			45,830
			426,470
Travel Expenses, Equipment, etc.			192,387
			654,857
Administration Costs at 5 percent			32,743
SUB TOTAL			687,600
HEAD OFFICE			
Engineer of Mines	3	25,000	75,000
Clerk Steno	1	6,960	6,960
	4		81,960
Benefits at 11 percent			9,016
			90,976
Travel Expenses, Equipment, etc.			18,000
			108,976
Administration Costs at 5 percent			5,450
SUB TOTAL			114,426
TOTAL	35		802,026

(Estimated complement and annual cost to enforce the present Act and provide for staff to administer the Act in additional High Resource Areas)



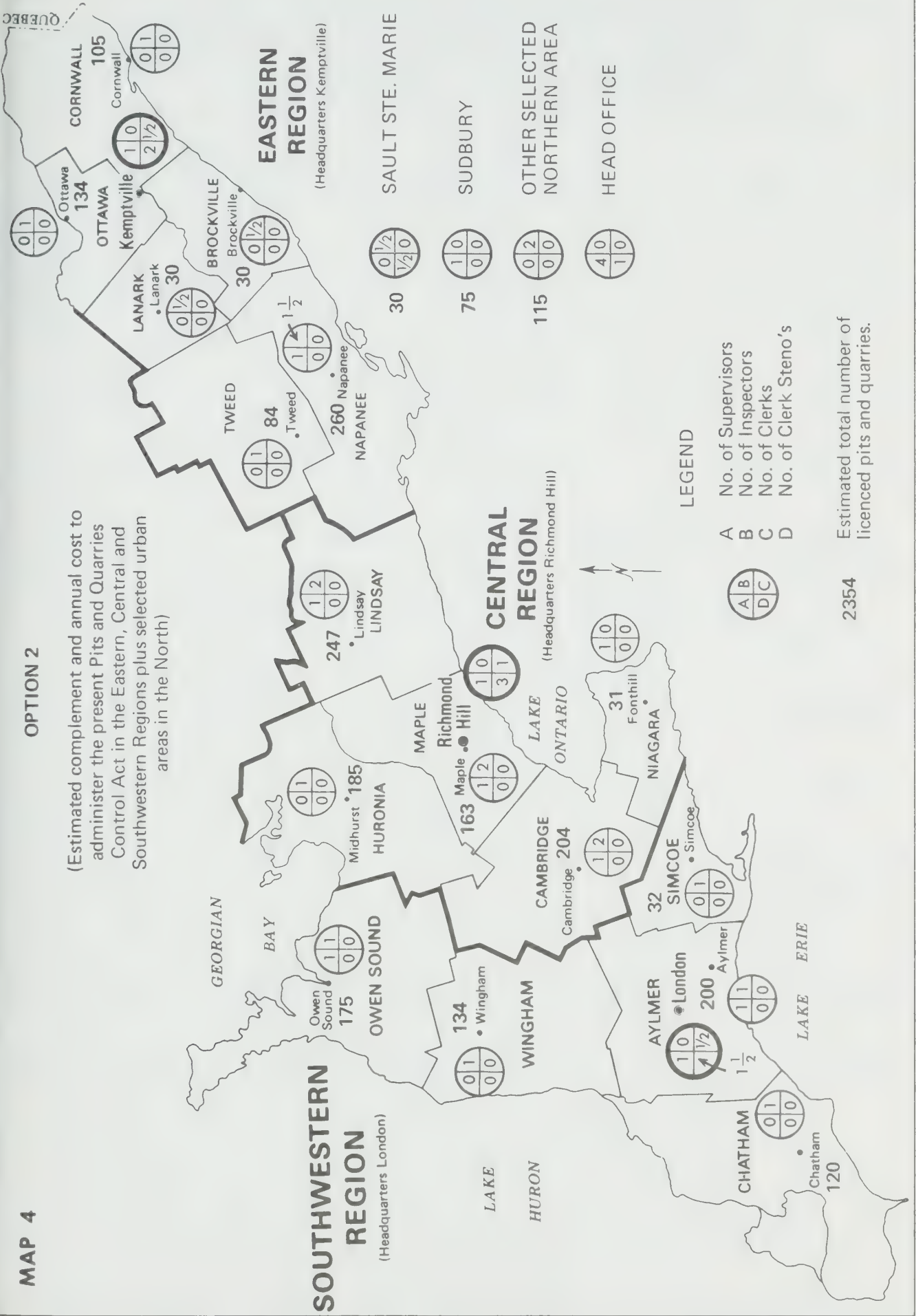
Mineral Aggregate Policy

TABLE 7

OPTION 2: MINISTRY OF NATURAL RESOURCES STAFF,
ESTIMATED COMPLEMENT AND ANNUAL COST TO ADMINISTER
THE PRESENT PITS AND QUARRIES CONTROL ACT IN THE
EASTERN, CENTRAL AND SOUTHWESTERN REGIONS PLUS
SELECTED URBAN AREAS IN THE NORTH.

FIELD STAFF	TOTAL COMPLEMENT	AVERAGE SALARY\$	TOTAL\$
Co-ordinators	3	25,000	75,000
Supervisors	8	16,800	134,400
Inspectors	20	12,000	240,000
Accounting Clerks	2	8,100	16,200
Clerk Stenos	7	6,960	48,720
	40		514,320
Benefits at 11 percent			56,575
Total Labour Cost			570,895
Travel Expenses, Equipment, etc.			237,492
			808,387
Administration Costs at 5 percent			40,419
SUB TOTAL			848,806
HEAD OFFICE			
Engineer of Mines	4	25,000	100,000
Clerk Steno	1	6,960	6,960
	5		106,960
Benefits at 11 percent			11,766
			118,726
Travel Expenses, Equipment, etc.			23,508
			142,234
Administration Costs at 5 percent			7,112
SUB TOTAL			149,346
TOTAL	45		998,152

(Estimated complement and annual cost to administer the present Pits and Quarries Control Act in the Eastern, Central and Southwestern Regions plus selected urban areas in the North)



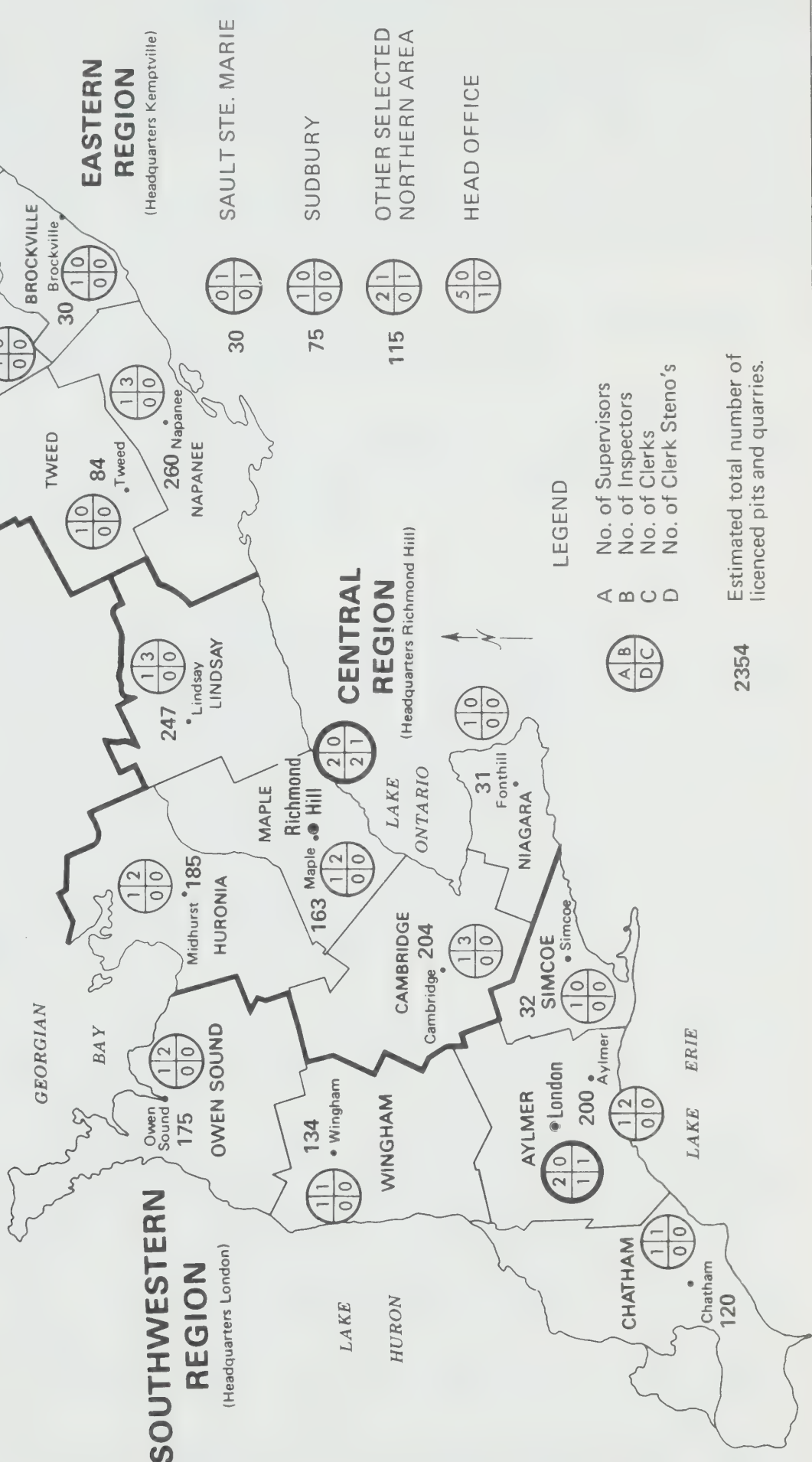
Mineral Aggregate Policy

TABLE 8

OPTION 3: MINISTRY OF NATURAL RESOURCES STAFF,
ESTIMATED COMPLEMENT AND ANNUAL COST TO ADMINISTER
PROPOSED NEW AGGREGATE RESOURCE MANAGEMENT ACT IN
THE EASTERN, CENTRAL AND SOUTHWESTERN REGIONS PLUS
SELECTED URBAN AREAS IN THE NORTH.

FIELD STAFF	TOTAL COMPLEMENT	AVERAGE SALARY\$	TOTAL\$
Co-ordinators	3	25,000	75,000
Supervisors	22	16,800	369,600
Inspectors	23	12,000	276,000
Accounting Clerks	5	8,100	40,500
Clerk Stenos	4	6,960	27,840
	57		788,940
Benefits at 11 percent			86,783
			875,723
Travel Expenses, Equipment, etc.			364,301
			1,240,024
Administration Costs at 5 percent			62,001
SUB TOTAL			1,302,025
<hr/>			
HEAD OFFICE			
Engineer of Mines	5	25,000	125,000
Clerk Steno	1	6,960	6,960
	6		131,960
Benefits at 11 percent			14,516
			146,476
Travel Expenses, Equipment, etc.			29,000
			175,476
Administration Costs at 5 percent			8,774
SUB TOTAL			184,250
<hr/>			
TOTAL	63		1,486,275
<hr/>			

(Estimated complement and annual cost to administer proposed new Aggregate Resource Management Act in the Eastern, Central and Southwestern Regions plus selected urban areas in the North)



CHAPTER 8

MUNICIPAL COMPENSATION

The Working Party in reviewing the problems created by the aggregate industry, in considering the cost of regulating the industry, and in receiving briefs has noted the persistent plea from local municipalities that they should be compensated for the special costs resulting from aggregate production. Most of this aggregate is used outside of the local municipality concerned. This point has been stressed by many municipalities since 1970.

The Working Party is very strongly of the opinion that every municipality has to play a part in and suffer some of the disadvantages resulting from activities supporting the economy beyond the municipal boundaries for obvious economic reasons. Nevertheless we feel that there is much merit in the case being made by the municipalities. Further we have concluded that there is a need to cover at least a part of the real cost involved in regulating the industry. Also, rehabilitation of abandoned pits requires funding as noted in Chapter 5.

In our public meetings we were frequently made aware of a real resentment by local inhabitants that their roads were either inferior to those of other municipalities or that the industry failed to bear any of the real costs to the local municipality. The Working Party has concluded that conventional sources of funding for such local municipalities from the industry are in fact inadequate.

The Working Party concurs with the findings of the Interministerial Committee on Mineral Aggregate Policy, and of the subsequent senior interministerial group mentioned in Chapter 1 on achieving municipal compensation.

The three methods of compensation considered by the Working Party were:

1. *An operator of pit or quarry would be required to enter into an agreement to reimburse the municipality for identified costs incurred by it as a result of the operation of a pit or quarry.* The agreement would be similar to the present subdivision agreement. Entering into the agreement would be a pre-condition to the granting of the licence.

The Working Party has considered this method as a serious possibility, but notes that it is easy to assume that the administration of such identified costs would not be equitable.

2. *Increased assessment of the land value of the site of the pit or quarry.* The proposed market value assessment increases do not appear to provide for adequate municipal compensation for the real effects of the aggregate industry on the surrounding countryside.
3. *Require payment of a licence fee by the operator of a pit or quarry based on tonnage classifications.*

The Working Party has concluded that an annual licence fee would be the simplest and most effective option. Such licence fees could easily be collected at the time of licence review. It would therefore be desirable if there were a common anniversary date for all provincial licences.

Accordingly we recommend:

- 50. That an annual licence fee be paid to the Ministry of Natural Resources by all licenced operators under the new Act.**

Ref. 22.

Having determined on the means it is still necessary to determine the licence fee itself. The Working Party has concluded that the fee structure should be drafted to provide sufficient funding so that money is available to cover:

- the cost of Aggregate Advisory Committees,
- the planning activities essential to achieve the provincial objective of resource conservation,
- the rehabilitation of abandoned pits,
- the real cost of the industry to the local municipalities.

On this basis we have concluded that 20 percent of the fees collected should be paid to the regional or county government, 50 percent should be paid to the local municipality in which the operation is located, and 10 percent be paid into a provincial Rehabilitation Fund for the rehabilitation of abandoned pits and quarries. The remaining 20 percent should go to the province as a contribution to the planning and enforcement costs of the new policy.

We have reviewed the costs that a local municipality which is also a major producer of aggregate is likely to incur as a starting point to estimate the revenue required. The total revenue derived throughout the Province on this basis should be about \$3 million annually based on an estimated total tonnage from 2,100 pits and quarries to be licenced under the proposed designated areas under the new Act.

Several alternative rates of licence fees were considered by the Working Party but with the exception of the option outlined in Table 9, the rates either did not generate sufficient funds or would necessitate extensive auditing.

It is therefore recommended:

- 51. That an annual licence fee be collected by the Province and divided on the following basis: 20 percent to the region or county, 50 percent to the local municipality, 10 percent to the Provincial Rehabilitation Fund for abandoned pits and quarries, and 20 percent to the Province as a contribution towards the planning and enforcement costs of the new policy, and that the 70 percent be rebated to the proper municipal authority.**

Ref. 3,4,5,7,14,17,22,23,24.

- 52. That a common licence anniversary date of June 1st be established for all operations.**

Ref. 18.

The Working party is well aware that there are possibly some inadequacies that the above formula cannot address. For example truck traffic from one local municipality is often heaviest in an adjoining municipality. Possibly an appeal to the Aggregate Resources Board should be provided for such cases, to allow some latitude in the allocation of funds to local municipalities. We have also recognized that if an operator distributes his material by rail, he does not contribute to additional road costs. In this case, the Province might consider foregoing part of the licence fee to encourage rail transportation.

As noted in Table 9, the Working Party thought it best to establish nine classes of licences based on tonnages. We have suggested this not only as a mechanism to graduate the fee structure, but also to improve the measure of control now being achieved by tonnage conditions in the licences.

For example, a Class D licence would allow an operator to extract up to half a million tons per year and the licence fee would be \$8000. This would place an element of control on tonnages extracted from a specific site thus preventing an operator with a Class D licence from substantially increasing his tonnage, adding more trucks to the roads and greater inconvenience to local residents. At the same time it provides a flexibility in operation required by the market and the operator.

An operator is unlikely to apply for a larger class of licence than he actually requires because he would be required to pay a larger licence fee. The total annual tonnage extracted would be restricted to the class of licence held, as indicated on the site plan. If an increase was required, the reasons for this would have to be presented to the regional mineral resources supervisor for review.

The Working Party has observed that there can often be an urgency for such requests to meet a market opportunity and that if the objective of competition in the business is to be achieved, there is a need for quick decisions. Again it is surely desirable to provide for decisions at the local level.

If it can be accommodated within the accepted approved site plans, any licence in Classes A to H could automatically be approved for one class higher by applying to the regional mineral resources supervisor of the Ministry of Natural Resources. This automatic increase will only be allowed once every five years. However, if an operator wished to increase his tonnage by two or more licence classes he would be required to follow the normal application procedure (see Chapter 4).

The site plans for Class A to H licences would be prepared by a professional as set out in Chapter 7 and would be legally binding on the operators of both commercial and municipal licences. All operators with licences in Classes A to H would be required to provide data on the extent and quality of the deposits to be extracted with the licence application. Such information would be made fully available to the public by the Ministry of Natural Resources as outlined in Chapter 3.

The Working Party has noted that there is a definite need for small commercial operations, easily and inexpensively licenced. We have observed that often this is the rationale given by municipalities when issuing wayside pit permits.

We have concluded that there is a definite need for small Class S licences in many parts of the Province where the demand for sand, gravel and stone is very localized and where the deposits are limited in extent.

TABLE 9

PROPOSED CLASSES OF LICENCES FOR PITS OR QUARRIES.

CLASS	TONNAGE	LICENCE FEE PROPOSED	NO. OF LICENCES 1975*	FEE THAT WOULD HAVE BEEN GENERATED IN 1975
A	over 2 million	\$50,000	4	200,000
B	up to 2 million	\$35,000	3	105,000
C	up to 1 1/2 million	\$25,000	6	150,000
D	up to 1 million	\$17,500	10	175,000
E	up to 3/4 million	\$12,500	19	237,500
F	up to 1/2 million	\$8,000	44	352,000
G	up to 300,000	\$4,000	119	476,000
H	up to 100,000	\$1,000	206	206,000
S	up to 20,000	\$100	482	48,200
TOTAL			893	1,949,700

*These figures cover only 123 townships and not the 269 townships now designated.

Class S licences generally should be restricted to a local or limited use pit or quarry for local township roads, maintenance or small construction projects. As soon as it is deemed necessary, the site or any part of it would be rehabilitated on order of the regional mineral resources supervisor or the annual licence would be revoked. The site plan and screening for a Class S licence would require the approval of the regional mineral resources supervisor and could be prepared by the applicant without professional assistance. The Ministry of Natural Resources should strictly control the maximum allowable tonnage on a Class S licence to a maximum of 20,000 tons per year. If a major project should come along and the Class S licence needed an increased tonnage, the owner or operator would have to apply for and comply with the full requirements of Classes A to H licences. Class S licences should be reviewed annually. In the case of problems the licence would be revoked and the rehabilitation security fee would be forfeited in full and used for immediate rehabilitation. We suggest that the site must be rehabilitated to its former use, or equivalent as agreed by the local municipal council.

Finally we have concluded that individual municipal levies or imposts should be prohibited under the new Act. In our opinion, the licence fees and the allocation of such fees as proposed in this Chapter, and the rehabilitation security deposits proposed in Chapter 7, are sufficient financial remuneration and security – no additional levy is either necessary or equitable.

CHAPTER 9

WAYSIDE PITS AND QUARRIES

The Mineral Resources Committee in its deliberations six years ago recommended that special provisions be established so that aggregate materials for road construction purposes could be made available to municipal and provincial authorities, both easily and cheaply. The need for such exceptions was justified on the following basis:

- they; [wayside pits and quarries] are required for a short period of time and only for specific projects,
- they should be subject to the same minimum performance standards required for permanent operations;
- that the time lag involved in the preparation of site plans and obtaining approvals of them and of rehabilitation security deposit agreements would seriously impede the efficiency and cost of many construction and reconstruction highway projects.

The Working Party has heard much on this matter. In fact more than half of the delegations and briefs we received spoke to the problem of wayside pits and quarries. While two municipalities pleaded for relaxed standards in the issuing of such permits, five municipalities and four other delegations pleaded equally as strongly that all wayside pits and quarries should be operated under rules as strict as those applied to commercial operations under The Pits and Quarries Control Act, 1971. Most interestingly, only one municipality and one ratepayers' group insisted specifically that wayside pit permits for road construction use should conform to local by-laws. Three municipalities stated equally specifically that they need not conform.

We have observed that there is a particular concern over wayside pits and quarries in high extraction areas surrounding the urban centres where the local residents do not believe that there is a need to open up additional pits when alternate commercial pits are available. Elsewhere, some local municipalities are obtaining wayside permits on a continuing basis from the same property instead of a licence, and these are not being maintained or rehabilitated to the same standard as commercial operations. The result has been many "abandoned" pits.

As noted in Chapter 5, provincial policy should encourage the complete extraction and rehabilitation of these sites.

The Working Party recognizes that, if wayside pits do not conform to the standards intended, then the credibility of the Act is at stake. As a matter of principle we do not see how any provincial or municipal body can be less responsible in its operations than the standard set for industry. A pit is a pit to a citizen, and if wayside pits are not maintained to standard then the total credibility of the Act and the government is at risk.

The situation of wayside permits is serious enough that it has caused us to consider whether or not wayside pit permits should be discarded altogether. But we recognized the need for wayside permits, as discussed previously. We were particularly impressed by the comments made in the brief of the Regional Municipality of Durham on this subject:

The "wayside" or "borrow" pit presents a particular problem for a municipality. This form of operation is attractive in that it can enable small deposits of aggregate to be utilized and can reduce the cost of constructing and maintaining public highways and roads.

However, wayside pits create many problems for the municipality. Wayside pits are as environmentally destructive and create the same degree of disturbance for residents as commercial operations. These operations also add greatly to the uncertainty as to the length of extraction at any particular site. All of these problems are compounded where large areas within a municipality are already licensed for commercial extraction.

THE ESTABLISHMENT OF WAYSIDE PITS IS SERIOUSLY QUESTIONED UNDER THE PRESENT MEANS OF CONTROL. AN AMENDMENT TO THE PITS AND QUARRIES CONTROL ACT, MUST PROVIDE MEANS WHEREBY THE LICENSING IS RESPONSIVE TO LOCAL NEEDS AND CONCERNS AND ENVIRONMENTAL DISRUPTION AND THE UNCERTAINTY OF LOCATION ARE MINIMIZED.

The Working Party has reviewed the data presented on the need for wayside permits, which is as follows:

- about half of the total annual consumption of sand, gravel and stone in the Province (or about 50 million tons) is required for road construction and road maintenance purposes; $\frac{1}{3}$ of the amount is used for the provincial highway system and $\frac{2}{3}$ by municipalities for their roads and streets;
- sources closest to the work will cause the least environmental disruption with trucks, noise and dust, and will reduce energy requirements;
- sources closest to the work will reduce haul distances, lower unit costs and the destructive effect on haul routes;
- commercial operators are frequently not interested in supplying higher quality material for road contracts at depressed prices;
- cost is an important factor since roads have a definite life of 10-15 years and, with the need to build new roads to meet traffic demands, financial resources required are made available through provincial sources and through local property taxes;
- roads often require earth borrow which, for economic reasons, is brought in by scraper type equipment. This type of equipment can only be used adjacent to the right-of-way.

The Working Party has concluded that wayside pits and quarries generally generate local social and economic benefit, and also that they benefit the provincial economy. For example, the provincial road system consists of some 13,000 miles of highways and freeways and 83,000 miles of municipal roads and streets.

Because of its significance to the provincial economy, we examined the building process for roads. Road authorities usually place the responsibility for obtaining earth borrow and granular materials directly with the contractors. The bidders submit their bid within a period of 3-5 weeks from the date of contract advertising depending upon the nature of the work. During this period, the bidder prepares his bid for the work, taking into account material sources, royalties, haul route, and equipment. The accepted bid is, therefore, based on specific sources and haul routes.

Due to the work and effort required in preparing and processing a permit, it is not considered reasonable to expect each bidder to obtain a permit until he has been awarded the contract. The road authorities place the responsibility on the contractor to conform to local by-laws. It is well known, however, that local municipalities frequently do not have the resources to enforce their own by-laws and, in any event, the project is likely to be completed before the legal process has commenced. The situation is further complicated by the legal ruling that extraction is not a land use, thus invalidating the by-laws in this respect. We also note that local municipalities can and do exempt themselves from zoning in requesting wayside permits from the Ministry of Natural Resources.

The Working Party recognizes that a good public tendering system is essential. The system must provide all the potential bidders with the same basic information from which to prepare bids. The bidder must be able to assess the pits or areas in relation to the equipment that he has available and to seek alternate pit sources to those that might be provided, for competitive reasons. The system must permit the use of the closest suitable material sources, provided there is no serious conflict with other land uses, and the procedure involved must be fast, well-known and positive. It must result in a minimum bidding period and be sufficiently flexible to allow the use of alternate sources during the course of the work – often necessary because of quantity or quality problems in the wayside pit or quarry. In general, a desirable system should provide suitable materials for road construction at costs based on reasonable competition among the owners of all known sources, at minimum haul costs. *Most important the procedure used must be open, and offer no potential for individual influence on the bidding process.*

On the other hand there is valid concern on the part of residents close to pits that sufficient warning of road projects is not given. We suggest that it is necessary to find an effective way to consider the need and local sensitivities *before* the wayside permits are issued.

To accomplish this objective credibly a wayside permit must be reviewed by an outside agency to consider the need, the adequacy of rehabilitation proposed and certainly the effect of that contract on the resources of the region. We are informed that, in some instances, road contracts could deplete township resources, forcing the local municipalities to bear the additional haulage costs for road maintenance in the municipality in the future. Obviously such a situation ignores both local interest and any concept of resource management.

For these reasons we recommend:

- 53. That all wayside pit or quarry permits be issued by the Minister of Natural Resources after consultation with the municipal engineer acting on behalf of the municipality. The Minister of Natural Resources could have the authority to issue or reject the permit application ir-**

respective of zoning.

Ref. 17.

54. That exemptions be given to wayside pits and quarries in official plan policies.

Ref. 18.

The Working Party has tried to find a solution to this difficult problem and recommends that, wayside pit permits should be issued regardless of zoning and commercial pit availability for any of the following reasons:

- there is no significant conflict with other land uses;
- significant savings of transportation costs result;
- resource conservation is achieved in that resources are used which would not normally be commercially extracted;
- there is an opportunity to rehabilitate abandoned pits;
- there is a lack of competitive sources of supply;
- significant benefit to the landscape results;

PROVIDED THAT

- rehabilitation conforms to the standards of the Act.

We have concluded that the requirements of a fair, effective, bidding process can only be achieved if a review of the sensitivities of all the proposed sites can be accomplished *within the term of the bidding process*.

We propose that the Ministry of Transportation and Communications and the Ministry of Natural Resources personnel within each region should meet periodically with regional and county engineers and discuss aggregate problems within the regions in order that local sensitivities are understood. Such close communication is a necessary precondition if the following proposal is to be workable.

When any call for tender is made by a road authority, a copy of the tender documents should be delivered on the tender date to the municipal engineer concerned and the Ministry of Natural Resources supervisor for the region. These documents, and all strip maps should contain the caution that no assurance is given that a *permit will be issued* on any site not shown on the strip map and that the risk and costs are therefore incumbent upon the bidders.

On receipt of the tender documents the municipal engineer would advise the Ministry of Natural Resources supervisor within three working days of any local municipal concerns together with his comments thereon in regard to the proposed sites on the strip maps. It is obvious that he would need policy guidelines from the regional or county municipality and local municipality concerned. On receipt of the information from the municipal engineer, if the Ministry of Natural Resources inspector concurs, he would advise the road authority within seven working days from the date of the tender that such sites would have to be withdrawn. The road authority would then, before the tenth working day, advise all tenders that such sites were not available.

We believe that by using this process, or some modification, it should be possible to achieve the objectives of road authorities with an independent review of the need for a permit by an independent authority – the Ministry of Natural Resources.

While the recommendations made here would require changes in zoning legislation, we believe that the objectives of all road authorities can be reconciled with local sensitivities using this procedure. In the few cases where permits were

denied, the failure would have to be attributed to the failure of the bidder to consider local sensitivities; he would then have to secure alternate sources within his bid price at his expense. The Working Party is aware that some road authorities, particularly the Ministry of Transportation and Communications, control rehabilitation adequately, by using their hold back procedures. The Ministry therefore believes that no special action on the part of an outside authority is required in this instance. However, the Working Party concluded that a release of the completed rehabilitation program by the Ministry of Natural Resources should be a mandatory contract condition preceeding release of the hold back.

We are advised that most municipalities have a study of their road "needs" for the future, and that all are eligible for provincial grants ranging from 75-100 percent of the costs of need studies.

Further we believe that all municipalities should be required to maintain the same standards in their operations as are required of commercial operators. In this instance it cannot be presumed that wayside pits and quarries constitute continuous operations. They should only be used for the unusual circumstances which normal foresight or planning cannot predict. Thus permits should not be issued for maintenance purposes. We have noted the procedure followed by Victoria County to meet their needs for maintenance aggregate (see Appendix 8), and commend it to the attention of all municipalities. Basically the approach is to establish agreements with operators of pits strategically located throughout the municipality for supply over a ten year period of aggregate at an agreed price schedule. Such an approach meets the needs of the municipality at predictable costs, and maintains the same standards of operation as commercial operators in municipalities. Thus the need for wayside pits operating as ongoing operations for maintenance purposes is eliminated.

Therefore we recommend:

- 55. That regional or county municipalities encourage the establishment of sufficient licensed operations strategically located throughout the municipality to provide for their anticipated needs at negotiated firm prices.**

Ref. 16,19.

However, the Working Party notes that municipalities may have need for aggregate for construction projects on the same basis as the Ministry of Transportation and Communications, and thus that they may require special consideration for certain sites.

We therefore recommend:

- 56. That wayside permits be issued for specific road authority municipal construction projects for 18 months maximum, and that these permits require a filed rehabilitation plan acceptable to the Ministry of Natural Resources with a fixed rehabilitation deposit at time of application equal to 8 cents per ton for each ton to be extracted, and a guarantee of rehabilitation by the local municipality.**

Ref. 4, 13, 17, 23.

- 57. That in any regional or county municipality no wayside pit permit be issued to any authority having one such permit with a rehabilitation requirement in default.**

Ref. 3.

CHAPTER 10

RESEARCH FOR THE FUTURE

It has been evident throughout our investigations that proper management of the aggregate resources of Ontario is not possible without a much improved knowledge base. Data on existing operations must be collected and research in many fields is required if we are to have adequate insight into future problems related to mineral aggregate extractions. Some of these areas of research were identified through the public participation program; others through briefs and submissions received by the Ontario Mineral Aggregate Working Party; and others by our investigations and studies as reported earlier in this report.

The introduction of this study outlines several existing problems with the present Pits and Quarries Control Act. If the credibility of the Act, the protection of local interests and resource availability are to be improved then the Province of Ontario must begin immediate remedial action.

The areas of research required include available reserves, the economics of demand and supply forecasting, transportation and development systems, rehabilitation techniques, training programs and aggregate conservation methods. Each of these areas will be discussed in the following pages and recommendations arising from the discussion will be outlined.

As a result of our work we have reached the following broad conclusions:

It is the Working Party's opinion that the Province of Ontario must complete the gathering of all data required as soon as possible, and ensure that adequate research programs are initiated.

That at least \$250,000 annually will be required for this purpose, for extra provincial geological surveys, data collection, and for contract research studies to answer the questions and fill the deficiencies in our knowledge base identified in this report. Such a program should be funded for at least three years by the Province and then progress should be reviewed.

We will now summarize the various types of research that need to be encouraged, and note that while some are possible within government programs, many are not. We suggest, however that some seed money should encourage such re-

search within the university system. We suggest that a minimum of \$100,000 per year should be provided for this purpose. This amount along with the funding requested for reserve studies is the basis for our conclusion that \$250,000 funding should be provided for this program annually.

AVAILABLE RESERVES

The Ministry of Natural Resources through the Geological Branch of the Division of Mines has made remarkable progress in the last few years in identifying the available reserves across Ontario. They have also made an excellent start in producing "Recommendations for Sand and Gravel Areas" reports to be used by municipalities in their official plan preparation. *This task must be completed before the process of municipal involvement can be fully effective.* We are advised that this can be accomplished with present staff levels if contract staff can be hired and \$150,000 additional funding for each of three years is provided for this purpose. A previous recommendation in Chapter 4 reflects the basic premise that these geology reports will be completed for all designated areas before 1980, and will be made available to both local municipalities and regional or county municipalities for their use in the preparation of official plans.

Appendix 3 is a comprehensive report on how these recommended areas are derived from the Quaternary geology maps and field techniques. We believe this information is essential to all municipalities and others interested in planning for resource conservation. We suggest that greater attention must be paid to the quality and quantity of reserves in future studies. Clearly there must be very close liaison between the Geological Branch, the regions and the municipalities if the mineral aggregates are to be protected for future use; and obviously before reserves can be protected, they must be identified.

As has been pointed out in Chapter 3, additional geological studies should be conducted in an on-going attempt to improve the available data on aggregate resources and reserves including both sand and gravel and limestone. Studies should also be conducted for other important industrial minerals including shale and clay.

It is fair to say however that if the provincial inventory of aggregate resources is to be completed, such detailed studies will have to be deferred for some years unless further staff and funding are provided.

ALTERNATE SOURCES OF SUPPLY

We have suggested a number of alternate sources of aggregate supply to the major market areas, that is, the Central Ontario Planning Region focussed on Metropolitan Toronto. The implications and economies of all these alternatives must be known soon if future supplies from these sources are to be available for the period beyond 2000.

As we have noted earlier, underground mining is one area that deserves detailed authoritative study. Underground mining of stone within the market area

is a real possibility in the Metropolitan Toronto area and in the Niagara Escarpment. The main advantages are the minimization of environmental disturbances and the elimination of unnecessary transportation costs.

Since cost estimates for mining operation require detailed geological drilling, expensive site specific studies must occur which require clearly defined parameters under which such an operation would be permitted to operate. It may then be desirable to encourage feasibility studies on such sites.

Therefore, as we previously suggested in Chapter 3, Metropolitan Toronto, the Regional Municipalities of Peel and York, and the Niagara Escarpment areas should identify areas in which underground mining could occur. The Province should consider matching grants for geological research drilling and feasibility studies of mining in these areas.

DEMAND FOR AGGREGATES

A most important area for research involves a review of demand forecasting techniques for mineral aggregates as outlined in Appendix 4. The forecasting techniques developed by Proctor and Redfern estimate the future consumption of aggregate and have shown the deficiencies of our ability to forecast demand. If any attempt is to be made by the Province to anticipate and plan for the future then we need to know more about our demand patterns now, and the factors likely to affect demand in the future. Chapter 3 has already recommended that a general review of modelling techniques be considered to determine if the accuracy of the forecast model can be improved upon.

We further recommend:

- 58. That revised input co-efficients be developed based on actual consumption figures of major consumers in each category.**
- 59. That control projections be developed based on the activity forecasts of major consumers, that is, Ministry of Transportation and Communications, Metropolitan Toronto, Canadian National and Canadian Pacific Railways, and construction associations.**

TRANSPORTATION

There have been several large aggregate deposits identified by aerial interpretation on the north shores of Lake Superior and Huron. These and other areas require detailed study comparable to that which has been carried out in Southern Ontario. Also the feasibility of transporting material from the area of Marathon Region and other parts of Northern Ontario to Toronto by boat or rail requires further study.

Appendix 5 explains the limited data available and outlines further studies which should be conducted related to transportation. Highlights of this appendix are summarized as follows:

- (1) Rail receiving depots in Metropolitan Toronto are inadequate for any greatly increased planned rail haulage of aggregate to the Toronto market. Consequently it has been recommended in Chapter 3 that as an incentive for volume

movements of aggregate the Province should study the feasibility of rail haulage to large aggregate receiving depots required to meet the Metropolitan Toronto and region expansion requirements to be operated on a toll basis with free access for all shippers.

(2) Water transport is certainly cheapest, but of six ports examined in the Toronto area only three are able to handle larger volumes of mineral aggregates than at present. Again provision must be made for receipt and redistribution of large volumes of aggregate if this mode is to be accessible to the industry.

Therefore, an examination of the feasibility of (a) constructing new docking facilities (b) updating existing harbour facilities was recommended to ascertain the viability of future aggregate receiving and redistribution centres in the Metropolitan Toronto area.

(3) The trucking mode of transportation is analyzed here as an alternative to the water mode for cost comparison. The utilization of this mode would more than double the present truck traffic in two areas as a result of hauling this material.

Therefore we recommend:

- 60. That the impact of increased truck traffic on certain provincial highways be examined, and the costs of upgrading the provincial highway system to provide adequate roads for the purpose from Grey County to Toronto and to the London area be identified as soon as possible and compared to rail haulage costs.**

Ref. 13, 14, 15, 18.

REHABILITATION METHODS

There are only a very few sites in Ontario where rehabilitation has been fully progressive and experimental. We must learn a lesson on rehabilitation of mined areas from the European countries especially the United Kingdom, West Germany and Holland. The United States has also made remarkable strides in different types of rehabilitation. The technology exists for virtually any type of rehabilitation so there are seldom adequate technological reasons for not completely rehabilitating every site. Research and documentation of rehabilitation methods are necessary so that industry has an opportunity to assess and inform municipalities of all the rehabilitation options available for any specific site.

It is therefore recommended:

- 61. That a complete manual on rehabilitation be published by the Government containing both a succinct and comprehensive description of what is meant by the term and a comprehensive description of the various methods of rehabilitation available.**

Ref. 12, 17, 23.

TRAINING PROGRAMS

The new Aggregate Resources Management Act would require training programs for two groups of people connected to aggregate extractive operations and

administration. Pit and quarry superintendents and executive staff would be required to attend a two-day course on rehabilitation methods and equipment, the new Act, its regulations and requirements and methods of operation. The second group that would have benefit of government expertise are the county and region road superintendents who have to work with the new Act and understand it fully. The training course for this second group could be incorporated into the Ontario Good Roads Association annual training course held at the University of Guelph.

We therefore recommend:

62. That funds and resources be made available for training courses and seminars designed to acquaint those involved with pits and quarries with the new Act and its full implications.

Ref. 4, 17, 19, 24.

SUBSTITUTE MATERIALS AND CONSERVATION OF AGGREGATE

It is true that certain materials including glass, asphalt wastes, fly ash, iron and steel slag, cinders, clinkers, mining wastes and ashes can be substituted for aggregate in its various uses. But all such substitutes have problems requiring further research. Also, almost all of these wastes are being used for more valuable purposes compared to aggregate use. In Chapter 3, we have concluded that other alternative aggregate sources are likely to be even more expensive, supported by the study reported in Appendix 4.

It is therefore recommended that:

63. That more efficient uses of aggregate be investigated close to large urban centres as well as in areas with potential aggregate shortages and aggregate quality problems.

Ref. 4, 19, 24.

CONCLUSIONS AND RECOMMENDATIONS

The Working Party very early in its work adopted the concept of provincial/municipal cooperation as being the basic means by which the aggregate resource management objectives of the Province would have to be met. We have examined the problems and proposed specific approaches which are summarized in the recommendations which follow.

We have examined closely areas where the present Act has not fully met its objectives, as well as specific methods by which each problem can be acceptably and effectively addressed. Our approach, although similar in some ways to that of the earlier Mineral Resources Committee, is specific because we believe that an effective provincial policy must specifically address all of the problems we have recognized. It is our observation that, given the type of legislation we are recommending, the provincial needs for aggregate will be sufficient well beyond the year 2025 from sources in Southern Ontario alone, at acceptable cost. If public perceptions can be changed to find the industry acceptable, then available resources could expand significantly. We conclude that without this public acceptance, serious shortages will most surely develop within 10 years in Southern Ontario.

The cost of successful aggregate resource management need not be great. Implementation of all of our recommendations should add not more than 15 cents per ton to the cost of aggregates in Ontario. If the aggregate industry performance can be improved so that it gains public acceptance and this then leads to a reduction of transport distances for aggregates in Ontario by an average of two to three miles, then the result will be a net saving to the consumer.

Of course there is a provincial interest in the matter, and that is that aggregate, an essential commodity to the people of Ontario, would then be available at acceptable cost. It is the thesis of this report that the provincial interest can be served in no better way than by guaranteeing uniform enforcement and meaningful participation in the decision process at the local level. Failure to act could well result in future cost increases measured in dollars rather than cents.

Most particularly we note that to ensure adequate enforcement as assumed in all our recommendations, sufficient provincial staff must be provided. The policy we have outlined is based on the assumption that real and effective provincial/municipal cooperation is possible, and this is only possible if knowledgeable Ministry of Natural Resources staff are available to the municipalities at all times.

We must stress again our earlier strong reminder that each recommendation is an important part of the process of reaching the critical objectives:

- public acceptance of aggregate extraction;
- resource availability for the future.

Without local support no legislation can be effective. Over half of the recommendations in the summary following are essential elements in the proposed policy by the Working Party. If this policy is not accepted, we see only two other directions the government can take.

Firstly, the government could complete the designation of the remaining high resource areas of the Province and stiffen the enforcement capability of the present Act. This would require increased complement as outlined in Chapter 7, Option 1. This option would permit the Province to regulate most of the industry but it would effectively rule out the local participation we believe is essential to achieve acceptance of the aggregate industry.

Secondly, the Province could forego any intent to manage the resource for the future and turn the authority for licensing over to the regions and counties. Under this option local participation probably would emerge, but the process would be uneven and costly, and resource availability would ultimately be established by the economics of transportation. The demand would be met only from the more remote regions as shortages closer to the market forced the price up to a point at which the increased transportation costs could be managed.

For reasons which we believe are well detailed in the report we have rejected these two alternatives, but note that the policy which we propose requires time and staff resources to become effective. We do not believe that, on present evidence, the regional or county municipal planning process in Ontario will be in place to meet the needs of this policy in less than two or three years. Nevertheless it is important that the government recognizes that if this policy is adopted, the essential staff must be recruited and in place before, or at least at the time of, passage of the legislation. It will take at least a year to recruit and train the necessary personnel, and another year to meet the requests for information and planning assistance that are sure to come from the municipalities *the moment the policy is announced.*

We are aware of the controls the government places on complement and believe that it would be unreasonable to expect this complement to be released from the Ministry of Natural Resources, even if lower priority positions could be identified, in less than three years.

Therefore we recommend:

64. That if this policy is accepted, the Ministry of Natural Resources must be granted the increase in complement for this purpose, simultaneously with or before passage of the legislation.

In summary, we have outlined a provincial policy for mineral aggregate resource management in Ontario which places maximum discretionary authority at the lowest level of government at which it can be effectively administered –

regional or county government, and leaves the responsibility for resource management with the Province. We believe that this policy is the minimum necessary to achieve the goal of provincial/municipal cooperation, to ensure acceptable progressive rehabilitation of all pits and quarries and to assure credibility through consistent firm, and effective enforcement throughout the Province.

We conclude that if changes in the policy we have outlined are to be contemplated it is essential that something equally effective or better must be put in its place or one of the other options outlined above should be adopted.

We, the members of the Working Party are unanimous in our recommendations. We believe that we have completed our task as outlined in our terms of reference and wish to express a continuing interest in the implementation of the recommendations of this Report.

RECOMMENDATIONS

CHAPTER 2 ENVIRONMENT AND LOCAL INVOLVEMENT

1. That regional or county government is the appropriate level of municipal government to deal with aggregate issues.
Ref. 2, 3, 9, 14, 15, 17, 18, 21, 23 *.
2. That all regional or county municipalities producing more than 5 million tons annually be required to appoint an Aggregate Advisory Committee from nominations provided by local municipalities and selected to reflect production from local municipalities. In all other cases such an Aggregate Advisory Committee be appointed if requested by the local municipalities producing the majority of the aggregate in the region or county.
3. That progressive rehabilitation be defined in the new Act as planned mineral extraction with concurrent treatment of the land so that it is progressively returned to the condition described in the site plan, as agreed by regional or county and local councils.
Ref. 4, 10, 13, 14, 17, 24.
4. That rehabilitation of extracted areas be progressive on an annual basis as stated in the site plan agreed upon by the regional or county and local councils.
Ref. 4, 13, 17, 24.

*Note: These footnotes refer to briefs as documented and numbered in Appendix 1.

CHAPTER 3 NEED FOR MINERAL AGGREGATES

5. That a general review of forecasting techniques be undertaken in order to develop more reliable estimates of the future provincial demand for mineral aggregates.
Ref. 17, 19.
6. That the Ministry of Natural Resources should collect and publish on an annual basis, accurate statistics on production of aggregates in Ontario.
Ref. 17.
7. That the need for quality sand reserves be recognized as a higher priority than that used for stone.
8. That the Ministry of Natural Resources complete surveys of the available resources in Northern Ontario and publish the data along with a provincial compilation of aggregate resource data as soon as possible.
Ref. 5, 15, 17, 18, 20, 21.
9. That information on productive capacity and licensed reserves be collected by the Ministry of Natural Resources on a regional basis and that this information be made available to the regional or county and local municipalities annually.
Ref. 17, 20, 21.
10. That the regional licensing of capacity in the order of 125 percent of expected demand be used to ensure that regional supplies will be equal to any contingency.
11. That Metropolitan Toronto and the Regional Municipalities of Peel and York, as a matter of urgency, provide zoning to allow underground mining of aggregates within these municipalities.
12. That the Province assist in the process of acquisition of mining rights because of the highly fragmented ownership of underground mining rights in Southern Ontario.
13. That it be accepted as an essential part of the provincial policy that all aggregate areas share appropriately in the demand for sand, gravel and stone and that the Province take the initiative to begin the planning to provide for the transportation of supplies from more remote areas to meet future expansions of demand.
Ref. 5, 10.
14. That the Ministry of Natural Resources and the Ministry of Transportation and Communications should begin immediately working with the Federal and Metropolitan Toronto governments, and the Regional Municipalities of Peel and York to identify and protect areas where redistribution sites and underground mining could be located to provide for increases in future demands from the Metropolitan Toronto area.
Ref. 4, 13.

CHAPTER 4 THE PLANNING AND APPROVAL PROCESS

15. That the Province provide all designated regional or county municipalities with the basic surficial geological information on the location and extent of potential mineral aggregate deposits (both stone and sand and gravel).
Ref. 1, 8, 14, 15, 18, 21, 23.
16. That the local and regional or county governments and the Ministry of Natural Resources confer on mineral aggregate extraction areas to be designated in official plans so that these resources are protected from major development which would preclude aggregate extraction.
Ref. 1, 4, 8, 10, 14, 17, 18, 20, 21, 23, 24.
17. That those counties without established planning boards or staff be encouraged to establish a capacity for this purpose as soon as possible.
Ref. 4, 17, 22.
18. That an Aggregate Resources Board be established to hear appeals or objections under the new Aggregate Resource Management Act.
Ref. 1, 4, 15, 23, 24.
19. That if it is impossible for an Aggregate Resources Board to be established, new technical members be added to the Environmental Assessment Board to hear appeals or objections under the new Aggregate Resource Management Act.
20. That in counties and regions with no approved official plan incorporating designated mineral aggregate extraction areas and therefore no supporting policies, the Minister of Natural Resources make the decision or on appeal the Aggregate Resources Board make the decision reviewable by the Minister of Natural Resources, as to whether or not a licence for a new pit or quarry be issued and stipulating any necessary conditions to be attached to the licence if it is to be issued.
21. That in counties and regions with an approved official plan incorporating designated mineral aggregate extraction areas, with supporting policies, the regional or county council make the decision as to whether or not a licence to operate a new pit or quarry be issued and stipulating any necessary conditions to be attached to the licence if it is to be issued.
Ref. 2, 14, 18, 21.

CHAPTER 5 ABANDONED PITS AND QUARRIES

22. That abandoned pits and quarries on main roads be given priority for rehabilitation, but that the final determination of priorities be the responsibility of the regional or county municipality, in consultation with the local municipality.
Ref. 1, 4, 7, 12, 13, 16, 17, 18, 19, 21, 23.

23. That wayside permits and Class S licences be encouraged in abandoned pits and quarries where there is mineral aggregate remaining to be extracted.
Ref. 9, 14, 18.
24. That a provincial rehabilitation fund be established for abandoned pits and quarries from the annual licence fee and that 10 percent of the licence fee, be provided for that purpose to the fund.
Ref. 7.
25. That the property owner be required to repay the costs of rehabilitation of the abandoned pit or quarry, if the land is sold within 10 years of the completion of the rehabilitation. If the land is not sold within 10 years the rehabilitation grant should be forgiven.
Ref. 4, 12, 17, 18.

CHAPTER 6 CONFLICTING AND OVERLAPPING LEGISLATION

26. That The Planning Act be amended to define the making of a pit or a quarry as a use of land within the meaning of Section 35(1)1 of The Planning Act.
Ref. 1, 22.
27. That if the making or establishment of pits and quarries is defined as a use of land then Section 35(1)6 be repealed since it would then be redundant.
28. That in order to avoid duplication of control, The Planning Act be amended to provide that where the new Aggregate Resource Management Act is in effect in regions and counties with approved official plans incorporating designated mineral aggregate extraction areas with supporting policies, local zoning by-laws cease to apply to the control and location of pits and quarries.
Ref. 1, 19.
29. That Section 35(2) of The Planning Act be amended to remove municipal power to prohibit pits and quarries in regions and counties with approved official plans incorporating designated mineral aggregate extraction areas with supporting policies and to remove any municipal power to regulate pits and quarries in any municipality of the Province coming under the jurisdiction of the new Aggregate Resource Management Act.
Ref. 1, 16, 19.
30. That The Municipal Act be amended to provide that Section 354(1)123 may be applied by a local municipality only where the new Aggregate Resource Management Act is not in effect.
31. That Section 354(1)122 of The Municipal Act be amended to limit its application to regions and counties not having approved official plans incorporating mineral aggregate extraction areas and therefore no supporting policies.
32. That aggregate production from the Niagara Escarpment Planning

Area be maintained in the future to the extent possible within the objectives and restrictions of the Niagara Escarpment Planning and Development Act and the objectives of the new Aggregate Resource Management Act.

Ref. 10.

33. That the Niagara Escarpment Commission designate mineral aggregate resource areas with supporting policies in its plan so authority could be delegated to the Commission to approve licences for operations of pits and quarries similar to the system proposed for regions and counties if the government decides to retain some type of commission or body for the Niagara Escarpment Planning Area.

Ref. 9, 10.

34. That pits and quarries be exempted from the provisions of The Environmental Assessment Act since the new Aggregate Resource Management Act will contain equal environmental requirements to be applied to pits and quarries.

35. That The Environmental Protection Act continue to apply to the aggregate industry for the purposes of controlling and setting standards for noise, vibration, dust, emissions, and other related matters but be established before the fact in the site plans and in the operating conditions.

Ref. 2, 18.

36. That The Ontario Water Resources Act be maintained as the controlling legislation over surface water and ground water as it is affected by pit and quarry operations.

Ref. 12.

37. That The Trees Act be amended so that Section 4 does not apply to pits and quarries, on the basis that control will be achieved through the site plan approval process.

38. That no topsoil be removed from any licenced property. That legislation be passed to allow municipalities to control topsoil removal except on licenced pit or quarry areas.

Ref. 14, 17, 18, 21, 24.

39. That all pits and quarries on Crown lands in non-designated areas be regulated under the proposed Mining Lands Act and that any revision of The Mining Lands Act contain operating and rehabilitation conditions similar to those set out in the new Aggregate Resource Management Act.

40. That all pits and quarries on Crown lands in designated areas be regulated in accordance with the new Aggregate Resource Management Act.

Ref. 21.

CHAPTER 7 LICENSING AND ENFORCEMENT

41. That all of the Eastern, Central and Southwestern regions of The Ministry of Natural Resources plus major urban centres in Northern Ontario be designated under the new Act.

Ref. 2, 4, 7, 12, 14, 17, 18, 20, 23, 24.

42. That all site plans for new properties be reviewed by the appropriate local municipal council and approved by regional or county council, if a licence is to be issued.

Ref. 14, 22.

43. That all existing site plans for existing licences be reviewed by local council, and upgraded by class of tonnage within three years of the passage of the new Act or earlier upon request from the local municipality relative to specific licences.

Ref. 2, 7, 12, 14, 18.

44. That special conditions related to some particular problem of a site, not included in the regulations to the new Act, as necessary, be attached to any new licence.

Ref. 17.

45. That any person who operates a pit or quarry and who contravenes any provision of the site plan, any term or condition of a licence or any requirement of the Act or the regulations be liable to a fine of not less than \$250 per day up to a maximum of \$5000 per day for each day on which the contravention occurs or continues.

46. That the Minister of Natural Resources have the authority to suspend a licence for contravention of any provision of the site plan, any term or condition of a licence or any requirement of the new Act or the regulations.

Ref. 1, 23.

47. That the amount of the rehabilitation security deposit be equal to 8 cents per ton of material removed from the pit or quarry property in the previous calendar year.

Ref. 1, 7, 17, 18, 22, 23.

48. That where a pit or quarry is in operation and progressive rehabilitation has been carried out, the operator of the pit or quarry may file a claim for a rehabilitation refund for such amounts as are approved by the Minister of Natural Resources having been expended in progressive rehabilitation in the previous calendar year, and submitted by June 1st, provided that the operator shall not be entitled to reduce the amount on deposit to less than \$300 for each acre still requiring rehabilitation.

49. That the Ministry of Natural Resources be provided with sufficient staff and funding to effectively, consistently and credibly enforce the new Act, that is, 63 staff dedicated solely to the enforcement of the Act.

Ref. 18.

CHAPTER 8 MUNICIPAL COMPENSATION

50. That an annual licence fee be paid to The Ministry of Natural Resources by all licenced operators under the new Act.

Ref. 22.

51. That an annual licence fee be collected by the Province and be divided on the following basis: 20 percent to the region or county, 50 percent to the local municipality, 10 percent to the Provincial Rehabilitation Fund for abandoned pits and quarries, and 20 percent to the Province as a contribution towards the planning and enforcement costs of the new policy, and that the 70 percent be rebated to the proper municipal authority.
Ref. 3, 4, 5, 7, 14, 17, 22, 23, 24.
52. That a common licence anniversary date of June 1st be established for all operations.
Ref. 18.

CHAPTER 9 WAYSIDE PITS AND QUARRIES

53. That all wayside pit or quarry permits be issued by the Minister of Natural Resources after consultation with the municipal engineer acting on behalf of the municipality. The Minister of Natural Resources could have the authority to issue or reject the permit application irrespective of zoning.
Ref. 17.
54. That exemptions be given to wayside pits and quarries in official plan policies.
Ref. 18.
55. That regional or county municipalities encourage the establishment of sufficient licensed operations strategically located throughout the municipality to provide for their anticipated needs at negotiated firm prices.
Ref. 16, 19.
56. That wayside permits be issued for specific road authority municipal construction projects for 18 months maximum, and that these permits require a filed rehabilitation plan acceptable to the Ministry of Natural Resources with a fixed rehabilitation deposit at time of application equal to 8 cents per ton, for each ton to be extracted, and a guarantee of rehabilitation by the local municipality.
Ref. 4, 13, 17, 23.
57. That in any regional or county municipality no wayside pit permit be issued to any authority having one such permit with a rehabilitation requirement in default.
Ref. 3.

CHAPTER 10 RESEARCH FOR THE FUTURE

58. That revised input co-efficients be developed based on actual consumption figures of major consumers in each category.

59. That control projections be developed based on the activity forecasts of major consumers, that is Ministry of Transportation and Communications, Metropolitan Toronto, Canadian National and Canadian Pacific Railways, and construction associations.
60. That the impact of increased truck traffic on certain provincial highways be examined, and the costs of upgrading the provincial highway system to provide adequate roads for the purpose from Grey County to Toronto and to the London area be identified as soon as possible and compared to rail haulage costs.
Ref. 13, 14, 15, 18.
61. That a complete manual on rehabilitation be published by the government containing both a succinct and comprehensive description of what is meant by the term and a comprehensive description of the various methods of rehabilitation available.
Ref. 12, 17, 23.
62. That funds and resources be made available for training courses and seminars designated to acquaint those involved with pits and quarries with the new Act and its full implications.
Ref. 4, 17, 19, 24.
63. That more efficient uses of aggregate be investigated close to large urban centres as well as in areas with potential aggregate shortages and aggregate quality problems.
Ref. 4, 19, 24.

CONCLUSIONS

64. That if this policy is accepted, the Ministry of Natural Resources must be granted the increase in complement for this purpose simultaneously with or before passage of the legislation.

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Appendix 1

SUMMARY OF MAJOR BRIEFS

TO THE

ONTARIO MINERAL AGGREGATE WORKING PARTY

The summary of briefs presented in this appendix is arranged by a numerical index below. This index is used throughout the body of the main report to reference the various recommendations.

1. Aggregate Producers, Ontario Association of;
2. Aggregate Studies, Foundation for;
3. Blair Ratepayers;
4. Conservation Council of Ontario;
5. Counties and Regions of Ontario, Association of;
6. Dufferin, County of;
7. Durham, Regional Municipality of;
8. Erin, Township of;
9. Grey, County of;
10. Halton, Regional Municipality of;
11. Landscape Architects, Ontario Association of;
12. Municipalities of Ontario, Association of;
13. Niagara Escarpment Commission;
14. Niagara, Regional Municipality of;
15. North Dumfrie, Township of;
16. Ontario Road Builders' Association;
17. Ottawa-Carleton, Regional Municipality of;
18. Peel, Regional Municipality of;
19. Ready Mixed Concrete Association of Ontario;
20. Rural Municipalities, Ontario Association of;
21. Sudbury, Regional Municipality of;
22. Uxbridge Ratepayers;
23. Waterloo, Regional Municipality of;
24. Wellington, County of;

A. BRIEF ISSUE: PLANNING PROCESS

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO

- Province should adopt a Non-renewable Resource Policy to protect aggregate for extraction
- all Official Plans should show aggregate reserves even if they are not approved for extraction immediately

2. FOUNDATION FOR AGGREGATE STUDIES

- the location for new pits and quarries should be regulated under the Environmental Assessment Act and therefore fall subject to environmental assessment.
- that powers of municipal control over the aggregate industry be retained and strengthened.
- existing legislation should be amended with regulations with regard to rehabilitation standards.

3. BLAIR RATEPAYERS

- policy should take into account Municipal and Regional concerns

4. CONSERVATION COUNCIL OF ONTARIO

- a comprehensive plan for land use and resource management setting aside certain reserve areas for future use for aggregates is an urgent priority. This plan should be reviewed by municipalities to ensure compatibility with Official Plans
- there must be province-wide policy
- areas unsuitable for aggregate production include: the Niagara Escarpment, shorelines, floodplains, watercourses and prime agricultural land etc.
- land use planning and resource management is needed

5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO

- mapping and classification of the nature and location of mineral aggregates reserves be conducted by the Province
- development by the Province, with municipal consultation of plans for the use of such resources. All plans to comply with Municipal Official Plans and Zoning By-laws

6. COUNTY OF DUFFERIN

- no mention

7. THE REGIONAL MUNICIPALITY OF DURHAM

- clearly establish that the standards as stipulated in The Pits and Quarries Control Act are minimum standards
- at present it is very difficult for a municipality having large reserves of mineral aggregates to effectively plan for its extraction.

8. ERIN TOWNSHIP

- potential sand and gravel areas should be designated on an Official Plan and controlled under zoning, only when such aggregates are required, and should not be pre-zoned

9. GREY COUNTY

- focus should be on accessible resources as many mapped areas are inaccessible.
- changing of Official Plans to permit wayside pits is too lengthy a process

10. THE REGIONAL MUNICIPALITY OF HALTON

- no decision has yet been made as to how Halton will incorporate extractive industry into their overall Official Plan although they recognize it must be dealt with somehow

11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS

- comprehensive planning should be undertaken to protect and preserve unique natural land features within major aggregate producing areas

12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO

- The Association requests the Province to consider when amending The Pits and Quarries Control Act that to have licenced pits and quarries take precedence over local tree cutting by-laws is not in the public interest
- general land use planning considerations must dominate all decisions relating to the establishment of aggregate mining operations.

13. NIAGARA ESCARPMENT COMMISSION

- no mention

14. THE REGIONAL MUNICIPALITY OF NIAGARA

- the Province should establish a provincial policy for mineral aggregate which should be implemented through regional, county or municipal government.

- local Official Plans should indicate mineral aggregate extraction areas with the regional or county council given power to specify any restrictions on quarrying activities.
- the region or county may undertake further studies as to whether mineral aggregate extraction areas should be designated as an addition to this plan
- licensing should be a provincial responsibility, but should be done in cooperation with the municipalities.

15. NORTH DUMFRIES TOWNSHIP

- aggregate resource areas should be pre-determined and made known to residents and potential residents

16. ONTARIO ROAD BUILDERS' ASSOCIATION

- no mention

17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

- detailed inventory of mineral aggregate resources is needed detailing quantity and quality. It must be in greater detail than the Proctor & Redfern report
- the lack of a formal provincial policy to ensure the availability of future aggregate supplies causes major difficulties for both the Region and area municipalities
- the “veto” power of municipalities who have no zoning regulations should be removed and all municipalities encouraged to fulfil their planning responsibilities
- Ottawa-Carleton has designated areas extractive in their Official Plan

18. THE REGIONAL MUNICIPALITY OF PEEL

- the Province should identify mineral reserves and suggest certain reserves are not sterilized by development
- a proportion of the identified reserves should be designated extractive in Official Plans. Municipalities should be left to work out their own staging of extractive operations
- Peel Region is not prepared to designate any further lands in any Official Plan for aggregate extraction until adequate amendments satisfactory to the Region and area Municipalities are made to Provincial legislation to adequately protect the needs of the community

19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO

- changes in The Pits and Quarries Control Act will necessitate changes in the Planning Act, the Municipal Act, etc., to ensure coordination and uniformity

20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES

- an inventory of available resources is very necessary
- a knowledge of supply must be related to demand and then the question of supplying this demand can be of prime importance.
- the pits and quarries control legislation will not in itself suffice to govern this industry, since it could be in constant conflict with other development allowable within a Local Plan
- the Act could, however, be a very vital document to provide a uniform Province-wide approach.

21. THE REGIONAL MUNICIPALITY OF SUDBURY

- certain areas of known aggregate potential will be designated Primary Resource Extractive areas in the Official Plan
- MNR Geological Branch should undertake detailed studies of the Region's Pleistocene geology
- there should be mandatory municipal input on applications for existing pits and quarries

22. UXBRIDGE RATEPAYERS

- The Planning Act intended to encourage local municipalities to formulate comprehensive local plans and the people assume that zoning by-laws will protect them
- reference is made to the Uxbridge versus Timber Bros. Supreme Court decision
- they support the passage of regulatory by-laws under the Municipal Act

23. WATERLOO REGION

- Province should adopt a Prime Resource Area Policy defining priority areas for extraction to ensure adequate supplies
- Regions and Area Municipalities should adopt their own local planning policies in their Official Plans which are compatible with Provincial Policy
- Planning Act should require aggregate policies and mapping in Official Plans

24. WELLINGTON COUNTY

- all known aggregate resources should be shown in Official Plans

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- against pre-zoning as it assumes a commitment
- Official Plan and implementing zoning by-laws should make provision for end use designations

B. BRIEF ISSUE: LICENSING

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO

- Provincial responsibility

2. FOUNDATION FOR AGGREGATE STUDIES

- licensing of new gravel pits to be restricted to areas of environmental and social suitability.

3. BLAIR RATEPAYERS

- Provincial responsibility
- prior to granting a new licence, existing pits should be satisfactorily rehabilitated

4. CONSERVATION COUNCIL OF ONTARIO

- a complete environmental impact assessment required prior to issuing a new licence

5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO

- no mention

6. COUNTY OF DUFFERIN

- no mention

7. REGIONAL MUNICIPALITY OF DURHAM

- no mention

8. ERIN TOWNSHIP

- low volume existing pits for local use only, could be licensed if deemed desirable, with sketch plans, rather than an engineer's survey

9. GREY COUNTY

- Provincial responsibility – should give authority to local M.N.R. inspectors to license pits to allow for fast flexibility
- need for a sustaining type of licence for municipalities when pit only used intermittently so as to avoid continuous renewals

10. THE REGIONAL MUNICIPALITY OF HALTON

- no mention

11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS

- no mention

12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO

- no mention

13. NIAGARA ESCARPMENT COMMISSION

- all licences should be revoked and reissued with conditions and tonnage limits

14. THE REGIONAL MUNICIPALITY OF NIAGARA

- the Region expects the Province to comply with local Official plans and zoning regulations when granting any licence for a pit or quarry.
- the Region desires consultation among the Province, Region and local municipalities to improve the review process before licences are issued.
- Provincial responsibility.
- Licence granting should be open to public scrutiny.
- If a licence application is not in conformity with the staged development of extractive areas, onus is on Province to prove that the resource is needed before a licence is granted.

15. NORTH DUMFRIES TOWNSHIP

- no mention

16. ONTARIO ROAD BUILDERS' ASSOCIATION

- there is a need for a simple and practical system of licence approval because the road building industry is temporary and moves from place to place.

17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

- the lack of adequate provincial consultation with the Region and area municipalities on licensing both new and established pits and quarries

- it is recommended that the licensing of pits and quarries be administered entirely from the “Ottawa District” office of MNR
 - the licensing procedure should not become so complex that small firms become discouraged from entering the market
18. THE REGIONAL MUNICIPALITY OF PEEL
- regional governments must be part of the site plans approval process
 - licences must be renewed annually only if the operator has complied to terms and conditions of the licence
19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO
- no mention
20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES
- no mention
21. THE REGIONAL MUNICIPALITY OF SUDBURY
- no mention
22. UXBRIDGE RATEPAYERS
- licences by the municipality
 - all residents within half a mile radius should be notified by registered letter of a request for a new licence. All applications should include a detailed review of all existing vegetation and wild life.
 - there should be a total moratorium on new licences until licensed pits are worked out and rehabilitation started
23. WATERLOO REGION
- Provincial decision based on Regional and Municipal input
 - 5 step process:
 - a. Application to M.N.R. by operator
 - b. Notice to public by area municipality
 - c. Public hearing by area municipality and decision by Province based on recommendation of Region and decision of area municipality
 - d. Review of operations by Province on request of area municipality, Region or operator
 - e. Enforcement operation by Province
24. WELLINGTON COUNTY
- Provincial responsibility
 - Licence for a previously worked, abandoned pit (non-commercial) to be reopened shouldn't require a Professional Engineering survey

C. BRIEF ISSUE: O.M.B. HEARINGS

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO
 - O.M.B. hearings too lengthy and too costly
 - O.M.B. members don't have enough expertise, not aware of problems
2. FOUNDATION FOR AGGREGATE STUDIES
 - no mention
3. BLAIR RATEPAYERS
 - O.M.B. hearings should be paid for entirely by licence applicant
4. CONSERVATION COUNCIL OF ONTARIO
 - open public hearings on extraction proposals should be mandatory at local level
5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO
 - no mention
6. COUNTY OF DUFFERIN
 - no mention
7. THE REGIONAL MUNICIPALITY OF DURHAM
 - no mention
8. ERIN TOWNSHIP
 - no mention

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9. GREY COUNTY

- no mention

10. THE REGIONAL MUNICIPALITY OF HALTON

- no mention

11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS

- no mention

12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO

- no mention

13. NIAGARA ESCARPMENT COMMISSION

- no mention

14. THE REGIONAL MUNICIPALITY OF NIAGARA

- no mention

15. NORTH DUMFRIES TOWNSHIP

- O.M.B. too far removed from situation to make decisions

16. ONTARIO ROAD BUILDERS' ASSOCIATION

- no mention

17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

- no mention

18. THE REGIONAL MUNICIPALITY OF PEEL

- no mention

19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO

- no mention

20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES

- no mention

21. THE REGIONAL MUNICIPALITY OF SUDBURY

- no mention

22. UXBRIDGE RATEPAYERS

- no mention

23. WATERLOO REGION

- would be no need for O.M.B. hearings if process referred to under "Planning Process" adhered to

24. WELLINGTON COUNTY

- O.M.B. hearings too lengthy
- no need for O.M.B. if legislation addresses issues satisfactorily

D. BRIEF ISSUE: REHABILITATION — MONITORING AND ENFORCEMENT

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO

- provincial monitoring, provincial enforcement
- municipalities have been worst offenders in rural areas
- want stricter provincial enforcement on a universal basis
- Province should be able to suspend licence prior to cancellation
- Province should take a firmer stand and close up bad operators

2. FOUNDATION FOR AGGREGATE STUDIES

- Request amendments to existing regulations with regard to rehabilitation standards

3. BLAIR RATEPAYERS

- rehabilitation of existing pits should be accomplished before Province grants operator another licence

4. CONSERVATION COUNCIL OF ONTARIO

- sequential land use must be applied to all pits and quarries
- comprehensive, well-developed plans for quarry operations and after uses are a fundamental requirement
- annual "housekeeping" rehabilitation should be followed wherever possible

- end uses should be in keeping with the wishes of the local municipality
5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO
- establishment of rehabilitation standards by the Province with municipal consultation: the enforcement of same by counties/ regional municipalities
6. COUNTY OF DUFFERIN
- no mention
7. THE REGIONAL MUNICIPALITY OF DURHAM
- the end use must be in conformity with the intent of Council as expressed in the Official Plan
 - Where there are extensive aggregate reserves to be extracted there must be an overall comprehensive rehabilitation program not just site by site programs. This should be prepared by the provincial or municipal government in consultation with the operators
8. ERIN TOWNSHIP
- no mention
9. GREY COUNTY
- operators should not be forced to rehabilitate if pit not exhausted and will probably be reopened
10. THE REGIONAL MUNICIPALITY OF HALTON
- the Region in consultation with the area municipality to control and regulate the rehabilitation, extension and new location of all mineral resource industries in the Region
11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS
- Ontario should study alternative methods available of pit and quarry rehabilitation
 - the site should be left in such a condition as to allow the establishment of a balanced ecosystem, with equal to or greater biological productivity than the prior site ecosystem
 - rehabilitation should be in a form of significant social and economic value
 - the rehabilitated site should not be in obvious visual contrast with the surrounding landscape
 - rehabilitation should be progressive
12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO
- adequate regulations for control and rehabilitation should be enacted by the Ontario Government
13. NIAGARA ESCARPMENT COMMISSION
- restoration should be sequential — municipalities or the Province should be empowered to undertake the necessary works in the event of default and recover the full costs as a charge against the land
 - all operating pits and quarries should be open to inspection by municipal and Ministry staff to ensure compliance
14. THE REGIONAL MUNICIPALITY OF NIAGARA
- the Region requires consultation among the Province, Region and local municipalities to ensure adequacy of quarry rehabilitation plans
 - rehabilitation should be progressive and related to local needs and concerns
 - the security fund should be increased 4 to 5 times the present rate to provide greater assurance and more funds for rehabilitation
15. NORTH DUMFRIES TOWNSHIP
- Province should enforce rehabilitation so that citizens don't have to go to legal expense to force rehabilitation
16. ONTARIO ROAD BUILDERS' ASSOCIATION
- there is a need for adequate and practical regulations for rehabilitation
17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON
- the need for improved provisions for the rehabilitation of pit and quarry sites
 - the legislation should include a definition of what is considered "adequate" rehabilitation and rehabilitation plans should be subject to regional and/or local municipality review
 - plans for rehabilitation should be made binding upon subsequent owners
18. THE REGIONAL MUNICIPALITY OF PEEL
- rehabilitation plans should be required to conform to area municipality Official Plans. Plans should be flexible to ensure options for change are open in future
 - an environmental assessment should be required of all sites
 - policing should be done by an inspection party consisting of Area Municipal, Regional and Provincial staff. An extra annual fee payable in the licence would go to the Province for policing

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19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO

- the industry must be required to observe reasonable and practicable safeguards to reduce or eliminate undesirable features

20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES

- no mention

21. THE REGIONAL MUNICIPALITY OF SUDBURY

- no mention

22. UXBRIDGE RATEPAYERS

- the Act has not been enforced
- all rehabilitation and site plans should be lodged at municipal offices for public view

23. WATERLOO REGION

- municipal and provincial monitoring, provincial enforcement
- may be alternatives other than rehabilitation which should be indicated in Official Plan
- Province should publish a manual as a guide to rehabilitation
- Province should be able to levy fines or suspend licence prior to cancellation

24. WELLINGTON COUNTY

- municipal monitoring, provincial enforcement
- should be progressive rehabilitation on pits

E. BRIEF ISSUE: REHABILITATION LEVIES

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO

- Act should make it cheaper to rehabilitate than not to rehabilitate
- present 2¢ per ton levy should be increased as present operators prefer to pay it than bother with progressive rehabilitation
- rehabilitation funds should be a matter of public record

2. FOUNDATION FOR AGGREGATE STUDIES

- no mention

3. BLAIR RATEPAYERS

- no mention

4. CONSERVATION COUNCIL OF ONTARIO

- no mention

5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO

- no mention

6. COUNTY OF DUFFERIN

- no mention

7. THE REGIONAL MUNICIPALITY OF DURHAM

- provide adequate funds for rehabilitation of existing operations
- the existing security required is not sufficient to ensure proper and adequate rehabilitation

8. ERIN TOWNSHIP

- no mention

9. GREY COUNTY

- no mention

10. THE REGIONAL MUNICIPALITY OF HALTON

- no mention

11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS

- in many situations the recovery of the tonnage-based security deposit would not be adequate incentive for the operator to progressively rehabilitate

12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO

- no mention

13. NIAGARA ESCARPMENT COMMISSION

- no mention

14. THE REGIONAL MUNICIPALITY OF NIAGARA

- should increase existing 2¢ levy per ton.

15. NORTH DUMFRIES TOWNSHIP

- no mention

16. ONTARIO ROAD BUILDERS' ASSOCIATION

- no mention

17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

- the fees levied for site rehabilitation are considered to be totally inadequate
- the security deposit should be refunded on the basis of the percentage of site rehabilitation and not on basis of expenditures on rehabilitation
- the amount of security should also be increased to more appropriately reflect actual rehabilitation costs

18. THE REGIONAL MUNICIPALITY OF PEEL

- the security deposit of 2¢ per ton is too low and around 10¢ per ton might be more appropriate and the ceiling on the security deposit should be \$100,000

19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO

- no mention

20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES

- no mention

21. THE REGIONAL MUNICIPALITY OF SUDBURY

- no mention

22. UXBRIDGE RATEPAYERS

- the levy of 2¢ per ton for rehabilitation is too low

23. WATERLOO REGION

- should increase existing 2¢ levy per ton
- surplus funds and interest should be retained by Province and used to rehabilitate lands elsewhere rather than paid to operators

24. WELLINGTON COUNTY

- supports present regulations in Act

F. BRIEF ISSUE: MUNICIPAL REVENUE

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO

- per ton levies or higher assessment will result in increased cost of aggregate

2. FOUNDATION FOR AGGREGATE STUDIES

- no mention

3. BLAIR RATEPAYERS

- area municipalities should be remunerated directly to compensate for damage to environment

4. CONSERVATION COUNCIL OF ONTARIO

- compensation for road damage to municipalities
- municipalities should be able to generate adequate tax revenues from operations, if their support is to be achieved

5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO

- provision of adequate compensation for municipalities

6. COUNTY OF DUFFERIN

- no mention

7. THE REGIONAL MUNICIPALITY OF DURHAM

- financial remuneration must be paid to municipalities providing mineral aggregate resources

8. ERIN TOWNSHIP

- a per ton levy should be granted to the municipality for all material taken out, that is not being used by the municipality itself

9. GREY COUNTY

- not an issue

10. REGIONAL MUNICIPALITY OF HALTON

- no mention

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11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS

- funding and implementation mechanisms for rehabilitation might include temporary or partial tax rebates to owners of properties in question

12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO

- a new taxing formula allowing appropriate levies on the operation to recover municipal costs is necessary

13. NIAGARA ESCARPMENT COMMISSION

- no mention

14. THE REGIONAL MUNICIPALITY OF NIAGARA

- local municipalities are not compensated adequately for the expenses created
- should increase local revenues, contribution to security funds
- a more creative use of property assessment and taxation practice could provide more funds for servicing and rehabilitation

15. NORTH DUMFRIES TOWNSHIP

- present tax base results in residential area citizens paying for cost of road rehabilitation
- assessment should reflect fair share of costs

16. ONTARIO ROAD BUILDERS' ASSOCIATION

- financial remuneration to municipalities for so called nuisance factors is quite inequitable and improper and therefore cannot support any policy of arbitrary and/or unreasonable assessment by municipalities

17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

- rural municipalities benefit little from the existence of pits and quarries
- the introduction of market value assessment could seriously affect the economics of the industry and ultimately the cost of aggregate
- a system of production royalties might be a possible means of providing general financial assistance to municipalities
- royalties would be payable only when the site is being operated, which should encourage the industry to secure land in advance of need
- legislation should be adopted to allow area municipalities to require operators to contribute to road construction, maintenance and clean-up operations

18. REGIONAL MUNICIPALITY OF PEEL

- a more just income from pit and quarry operations is needed and it may be achieved through the assessment method as follows:

1. unlicensed mineral reserve land — assess on a farm basis
2. land held under licence for extraction — assess on in situ market value of the deposit
3. land under extraction (active) — industrial assessment
4. rehabilitated land — re-assess on a farm basis

19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO

- no mention

20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES

- the question of compensation to those injuriously affected is of prime importance to rural municipalities. In many cases, this is not solely the municipality within which the industry is located.

21. THE REGIONAL MUNICIPALITY OF SUDBURY

- no mention

22. UXBRIDGE RATEPAYERS

- increased taxes and licence fees to meet the cost of municipal licensing and inspection
- adequate compensation should be provided to local municipalities for road damage
- compensation to all residents affected

23. WATERLOO REGION

- opposed to “nuisance grants” from Province
- 3 alternative solutions:
 - a. A per ton levy allocated to municipal or Regional road authorities
 - b. Unconditional grant to area municipality and Region equivalent to amount of property tax revenue of operations
 - c. Higher assessment of extractive areas and buildings

24. WELLINGTON COUNTY

- suggest a per ton levy for commercial pits to be paid directly to the municipality in addition to assessment

G. BRIEF ISSUE: WAYSIDE PITS

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO

- have been abused by municipalities
- have added to poor reputation of commercial operators
- appears to be two sets of rules; one for municipalities, one for commercial operators

2. FOUNDATION FOR AGGREGATE STUDIES

- no mention

3. BLAIR RATEPAYERS

- no mention

4. CONSERVATION COUNCIL OF ONTARIO

- wayside pits are separate problems but should operate to equivalent standards. Is high quality aggregate always appropriate for these uses?
- MTC holdbacks should be enough to assure rehabilitation in “worst case” conditions

5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO

- no mention

6. COUNTY OF DUFFERIN

- no mention

7. THE REGIONAL MUNICIPALITY OF DURHAM

- the establishment of wayside pits is seriously questioned under the present means of control. An amendment to The Pits and Quarries Control Act must provide means whereby the licensing is responsive to local needs and concerns and environmental disruption and the uncertainty of location are minimized.

8. ERIN TOWNSHIP

- each municipality should have the right to approve or refuse a wayside pit permit to any other municipality
- in the case of a wayside pit permit being granted to a neighbouring municipality, the municipality from which the material is being extracted should have the right to approve the access to and egress from the wayside pit and the haul route or routes out of their municipality

9. GREY COUNTY

- legislation should allow for extraction of 10% more aggregate than indicated on permit to allow for need fluctuations since they are often opened for one project only and permit renewal is too lengthy a process
- wayside pits very useful in small municipalities and cheaper and closer than large commercial operations

10. THE REGIONAL MUNICIPALITY OF HALTON

- no mention

11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS

- no mention

12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO

- no mention

13. NIAGARA ESCARPMENT COMMISSION

- should be allowed where necessary but operated to high standards

14. REGIONAL MUNICIPALITY OF NIAGARA

- all wayside pits (borrow pits) or quarries must be approved by the Region, following consultation with the local municipalities, with respect to location and rehabilitation
- the Region requests the Province to make improved provisions for the rehabilitation of any way-side pit or quarry
- there should be stricter control over the opening, operation and rehabilitation of wayside pits and quarries. The location should have to be approved by the municipalities (regional and local). Consid-

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eration should be given to defining a wayside pit or quarry possibly related to size and volume of material allowed to be removed.

15. NORTH DUMFRIES TOWNSHIP

- no mention

16. ONTARIO ROAD BUILDERS' ASSOCIATION

- as roadbuilders a major concern is for "wayside pits"; however road builders also purchase large quantities from commercial sources

17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

- the need for wayside pits to meet the same licencing standards and controls as conventional pits and quarries
- the powers of MTC to issue wayside permits should be turned over to MNR

18. THE REGIONAL MUNICIPALITY OF PEEL

- control for wayside pits should be the same as for commercial pits and quarries. However, wayside pits and quarries need not be from areas designated in the Official Plan

19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO

- no mention

20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES

- no mention

21. THE REGIONAL MUNICIPALITY OF SUDBURY

- no mention

22. UXBRIDGE RATEPAYERS

- Government credibility gone after MTC issued a wayside permit to Ambro at Coppins Corner — Province can't be trusted
- there should be no separate designation for waysides

23. WATERLOO REGION

- approval process need not be as thorough
- should be assurances of eventual rehabilitation
- should only be approved with consent of municipality and conform with bylaws and regulations

24. WELLINGTON COUNTY

- legislation should allow municipality to approve the location of access to and egress from pit, approve proposed haul routes, and approve the intended use of aggregate supply if not within own municipality

H. BRIEF ISSUE: DERELICT AND ABANDONED PITS

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO

- Province should enforce rehabilitation of abandoned pits

2. FOUNDATION FOR AGGREGATE STUDIES

- no mention

3. BLAIR RATEPAYERS

- no mention

4. CONSERVATION COUNCIL OF ONTARIO

- rationalization should be required to prevent half worked pits from becoming scattered over the countryside
- old abandoned workings continue to be eyesores and new legislation will not assure their rehabilitation. Incentives should be designated to encourage this

5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO

- no mention

6. COUNTY OF DUFFERIN

- no mention

7. THE REGIONAL MUNICIPALITY OF DURHAM

- provide adequate funds for rehabilitation of abandoned or inactive sites

8. ERIN TOWNSHIP

- no mention

9. GREY COUNTY

- would like to restore some to active operation and restoration

10. THE REGIONAL MUNICIPALITY OF HALTON

- no mention

11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS

- abandoned pits continue to be a problem which should lead to the consideration of rehabilitation, as a general social responsibility
- the Province of Ontario should be responsible for rehabilitation of these sites

12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO

- no mention

13. NIAGARA ESCARPMENT COMMISSION

- should be rehabilitated

14. REGIONAL MUNICIPALITY OF NIAGARA

- it should be made certain that pits are in fact abandoned, and if so, the sites should be surveyed to determine if the resource is depleted

15. NORTH DUMFRIES TOWNSHIP

- no mention

16. ONTARIO ROAD BUILDERS' ASSOCIATION

- no mention

17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

- no mention

18. THE REGIONAL MUNICIPALITY OF PEEL

- the Province should review possible alternative solutions as follows:
 - 1) rehabilitation by the owner with some incentive
 - 2) rehabilitation by the owner or municipality with financial assistance from the Province
 - 3) purchase and rehabilitation entirely by the Province
 - 4) incentive to purchase and development by private interests
 - 5) incentive to further extraction if remaining reserves are shown to be economically viable

19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO

- rehabilitation of land no longer required for production should be performed as feasible

20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES

- no mention

21. THE REGIONAL MUNICIPALITY OF SUDBURY

- many abandoned pits in the Sudbury area are on Crown Land representing some of the worst scars in the Region

22. UXBRIDGE RATEPAYERS

- the Province with the local municipalities should begin studies into the cost of rehabilitating all old used pits and quarries

23. WATERLOO REGION

- Province should establish a policy to rehabilitate abandoned pits using public funds as part of a provincial land management program
- part of these funds should come from interest or surplus funds in existing rehabilitation fund

24. WELLINGTON COUNTY

- owners should be able to relicense abandoned pits, subject to satisfactory rehabilitation, without a Professional Engineering survey

I. BRIEF ISSUE: MAJOR AREA OF RESPONSIBILITY AND AUTHORITY

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO

- Provincial as local responsibility and control too restrictive and subject to local political climate

2. FOUNDATION FOR AGGREGATE STUDIES

- Provincial policy but local decision making

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3. BLAIR RATEPAYERS

- Regional and municipal joint effort as Region is local arm of decentralized provincial government

4. CONSERVATION COUNCIL OF ONTARIO

- no mention

5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO

- The Pits and Quarries Act be amended to provide more stringent controls, enforcement of the regulations to be a responsibility of the regions and counties
- municipal authority be strengthened under new legislation

6. COUNTY OF DUFFERIN

- many municipalities in Dufferin County have been subjected to a serious inroad on their jurisdiction by the Niagara Escarpment Commission and we believe very strongly in the importance of municipal government. It is the only level of government where the individual citizen can walk into the council chamber and present his case directly
- there is already too much provincial control

7. THE REGIONAL MUNICIPALITY OF DURHAM

- until a long-term provincial mineral aggregate resource strategy is developed in co-operation with municipalities containing high reserves of aggregates, greater control of the activity must be vested at the municipal level
- reinforce the authority of a municipality to prohibit extraction through its zoning by-laws
- encourage municipalities to adopt regulatory by-laws to control and regulate the extraction of mineral aggregates

8. ERIN TOWNSHIP

- no mention

9. GREY COUNTY

- County level (not Townships) or local M.N.R. staff as provincial policy cannot cover areas with widely differing problems

10. THE REGIONAL MUNICIPALITY OF HALTON

- municipalities should have control over operations within its boundaries

11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS

- Provincial control by means of new legislation, research studies and rehabilitation work

12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO

- the recommendation in the Proctor & Redfern Report would negate any municipal control that exists over sand and gravel. The Association is opposed to the removal of local jurisdiction to prohibit, control and regulate the establishment and operation of pits and quarries
- control over the establishment of pits and quarries must remain with local government. The decision must be made by the community itself

13. NIAGARA ESCARPMENT COMMISSION

- detailed control is more properly a matter of municipal rather than provincial jurisdiction

14. THE REGIONAL MUNICIPALITY OF NIAGARA

Provincial, with specific areas for Regional and Municipal control

15. NORTH DUMFRIES TOWNSHIP

- Provincial policy but local decision making

16. ONTARIO ROAD BUILDERS' ASSOCIATION

- control over the aggregate industry should be by the Province

17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

- both the Province and area municipalities share the responsibility for establishing and enforcing operating standards and site rehabilitation
- there is a need for greater area municipality control over rock blasting, pollution effects, truck routing, hours of operation etc.
- the Act be amended to provide for the private enforcement of the regulatory standards without the necessity of receiving the Minister's approval to do so
- the *Province* to be responsible for ensuring availability of resources, settling disputes between "have" and "have not" areas, licensing, inspection, enforcement, research, rehabilitation, public education, financial assistance
- The *Regional Government* responsible for determination of resource availability, truck routing policies, land use policies, regional resource management plan

- the *Area Municipalities* role on mineral aggregates should be strengthened not weakened, location of new pits and quarries

- area municipalities should have the authority for supplementing provincial regulations concerning operating standards of the industry to account for specific situations. Area municipalities must regulate specific truck routes and phasing and standards of rehabilitation

18. REGIONAL MUNICIPALITY OF PEEL

- the Regional level of government must be thoroughly involved with all site plans etc.

19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO

- the Provincial Government reassume jurisdictional control over this resource and establish a policy

20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES

- without a constructive input arrived at after considerable discussion amongst rural members, there usually results the imposition of what might be considered by some to be excessive controls by the local councils

- the question of control must be a final responsibility of the governmental bodies, since it appears questionable if the industry will adequately police itself

- to suggest that local municipalities have no interest in this subject or need not be involved in the control process is unrealistic and in the long-term would be detrimental to all concerned

21. THE REGIONAL MUNICIPALITY OF SUDBURY

- the Region is responsible for the location of pits and quarries

- the Ministry of Natural Resources is responsible for the control of operation and rehabilitation of pits and quarries because the controls of the Pits and Quarries Control Act are almost non-existent. The Region has passed a by-law prohibiting pits and quarries

22. UXBRIDGE RATEPAYERS

- The Pits and Quarries Control Act should continue to act as a minimum set of regulations. However, the Act must be under the control of the municipalities who will have power to issue licences and inspect sites

- greater municipal control needed –in fact full municipal control over the aggregate industry

23. WATERLOO REGION

- joint effort

- Provincial policy formed with provisions for Regional/County and municipal input and specific responsibilities

24. WELLINGTON COUNTY

- Provincial with specific areas of municipal authority and control

J. BRIEF ISSUE: SPECIAL INTERESTS

1. AGGREGATE PRODUCERS ASSOCIATION OF ONTARIO

- concerned over preservation of aggregate for communities in which it is located

- feels that local governments inhibit extraction due to citizen pressure groups, special interests, and use Planning Act to prohibit resource extraction

- local politicians too short term to make fair assessment of situation, affects their re-election if decision against citizens' wishes

- differing regulations in individual municipalities make operations complex

- tonnage limits in Act inappropriate as tonnage requirements are unpredictable and markets change quickly

- municipalities take too long to change tonnage limits to allow operators to respond to market

- very concerned over public image, wants province to help clean up bad operations

2. FOUNDATION FOR AGGREGATE STUDIES

- the adoption of a basing-point system to equalize hauling charges, so the dispersion of pits away from urban markets can be achieved. Transportation by rail or water should be considered seriously for this industry

3. BLAIR RATEPAYERS

- interpretation of Act should be more explicit

- property owners adjacent to pits should be compensated for property devaluation

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- when site plan changes are proposed after approval, citizens should have opportunity to appeal

4. CONSERVATION COUNCIL OF ONTARIO

- the Council would like to see some demand met from other sources
- design and construction techniques should be examined to reduce consumption
- rail haulage should be examined in greater detail
- government should promote research into substitutes
- industry should encourage a public education program

5. ASSOCIATION OF COUNTIES AND REGIONS OF ONTARIO

- social, ecological and aesthetic values be considered in all phases of the work
- aggregate extraction sites be located in sparsely populated areas of the Province

6. COUNTY OF DUFFERIN

- more emphasis should be placed on obtaining aggregate from areas farther away from the built up areas

7. THE REGIONAL MUNICIPALITY OF DURHAM

- a provincial strategy for the extraction of mineral aggregates could be developed co-operatively through a joint provincial/ municipal committee designed to designate strategic reserve areas
- the committee would examine supply, demand, alternatives, land uses, and establish quotas for each area

8. ERIN TOWNSHIP

- no mention

9. GREY COUNTY

- Act should allow for flexibility for individual situations of nonconforming use
- would like to be able to level off ridges between lot lines without permit to extract if owners on either side desire
- special approvals for building permits close to Niagara Escarpment very cumbersome
- would like to be able to explore pits to determine extent of aggregate prior to filing for a licence

10. THE REGIONAL MUNICIPALITY OF HALTON

- to protect all potential industrial mineral resources within the Region from urban encroachment or development which might limit resource development
- recognize the pits and quarries restrictive zone and special policy areas of the Niagara Escarpment Commission
- there may be a potential conflict between the desire to exploit shale reserves and the desire to preserve agricultural land

11. ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS

- the visual qualities of the landscape must be considered as real and definitive a resource as the sand and gravel underlying the surface. We must all aim to maintain a positive human response with contemporary land uses

12. ASSOCIATION OF MUNICIPALITIES OF ONTARIO

- comprehensive studies of a highly scientific nature should be undertaken on the effect of pits and quarries on the environment including water table, water purification, pollution, ground vibration, traffic hazard, etc.

13. NIAGARA ESCARPMENT COMMISSION

- a system of major haul routes, embracing all modes of transportation, linking material sources to the market areas should be established including the provision or redistribution of depots
- applications to extract minerals should be supported with plans and data to indicate extent of deposits, staging of excavation and restoration, final grading and overall rehabilitation objectives
- applications for new licences or permits should be considered in relation to existing operations to avoid excessive concentrations in any one area

14. REGIONAL MUNICIPALITY OF NIAGARA

- to ensure an adequate aggregate supply while minimizing adjacent land use conflicts and damage to environmentally sensitive areas:
- site plans should provide more detailed information such as larger scale, 5 foot contour intervals, groundwater characteristics, and transportation routes within the site
- the practice of exporting aggregate to the United States should be questioned due to possible future aggregate shortages
- more revenues should be made available by the Province to municipalities for compensation due to

maintenance and reconstruction of roads from quarry vehicles

- consideration should be given to noise reduction and traffic routes which have the least effect on the community

- peat removal and the taking of top soil should be viewed as extraction and should be clearly covered in the Act

15. NORTH DUMFRIES TOWNSHIP

- Act should provide for safety and truck traffic controls
- should be buffer zones for noise and dust of operations
- should be remuneration for devaluation of private homes

16. ONTARIO ROAD BUILDERS' ASSOCIATION

- aggregates are an essential ingredient for road building and our industry simply cannot function without this commodity

17. THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

- inadequate enforcement of provincial regulations
- currently there is nothing to prevent good agricultural land from being destroyed by the removal of topsoil
- sod farming is very prevalent in the planning area and the region would like evidence on the long-term effects on these activities on soil conditions
- the Province to establish a program to inform the public about the problems facing the industry

18. THE REGIONAL MUNICIPALITY OF PEEL

- the responsibility for on-site activity and regulation of Pits and Quarries should be uniform throughout the Province
- berming and screening should be dropped except near settlements for noise abatement. Topsoil should be preserved. There is a need for more detailed site plans and these should be submitted to Regional Governments as well as local municipalities
- application for licence should include information on anticipated trucking. There must be compensation for damage to roads or provision for the operator to maintain roads used
- trip bonus system which encourages speeding should be made illegal
- fill and peat should be included under The Pits and Quarries Control Act
- renewal of licences should be annual and only renewed if the operator has complied with the terms and conditions of the licence

19. READY MIXED CONCRETE ASSOCIATION OF ONTARIO

- want assurances to pit and quarry operators for future supplies
- we are faced with aggregate being an essential, non-renewable product and demand continuing to escalate
- a positive program of education should be undertaken by the Provincial Government to explain the needs for aggregate and management of the resources

20. ONTARIO ASSOCIATION OF RURAL MUNICIPALITIES

- the opinion of rural municipalities should be a significant contribution to any policy position since the aggregate supply and extraction will be in a rural municipality
- demand is centred on the "golden horseshoe" Metro area and rural municipalities could not be expected to be too generous in satisfying the future demands of this area

21. THE REGIONAL MUNICIPALITY OF SUDBURY

- problems with quarry permits on Crown Land still being issued by the Mining Recording Office under the Mining Act
- there are financial advantages for operators on Crown Land
- the application of minimum regulations equally to pit and quarry operations throughout different parts of the Province, is not reasonable
- the stripping of topsoil should be stopped in prime agricultural areas
- control of Crown Land production must be brought under The Pits and Quarries Control Act

22. UXBRIDGE RATEPAYERS

- a time limit should be imposed on pits (maximum 5 years)
- all legislation to apply to established as well as new operations

23. WATERLOO REGION

- Official Plans should be main vehicle of policy implementation and should include:
 - a. criteria used to designate lands for extraction and processing

Appendix 1

- b. mapping of resource areas
- c. use of zoning bylaws and development agreements between municipalities and operators
- d. determination of nature of screening, extent of noise abatement, required truck routes, alternatives for rehabilitation and permitted ancillary uses

24. WELLINGTON COUNTY

- present legislation doesn't have adequate provisions for control of excavation of non-aggregate resources, e.g., top soil and clay
- staff who administer Act should be better informed and more sensitive to municipal planning process

Appendix 2

MINERAL AGGREGATE POLICY FOR ONTARIO:

PERSPECTIVES FROM THE PUBLIC

by

Desmond M. Connor and Jillian M. Roulet

Connor Development Services Limited

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INTRODUCTION

This report outlines the public participation program which was developed to obtain public input concerning mineral aggregate policy for Ontario and summarizes the results which were obtained and some observations and suggestions which have been derived. The location, operation and rehabilitation of gravel pits and stone quarries has been a contentious issue for many citizens over a long period of time. Since the Pits and Quarries Control Act of 1971 did not eliminate the problem, the Ontario Mineral Aggregate Working Party was established in December 1975 to investigate the issues and develop policy alternatives. From the outset, the Working Party decided that public input to its work was essential to ensure that all points of view were considered. As a result, this public participation program was designed and implemented from January to June 1976. We wish to acknowledge the help received from all members of the Working Party, especially from its Chairman, Mr. George Jewett, Executive Director of Mines, and its Executive Secretary, Miss Sherry Yundt. The program would have been impossible without the generous co-operation of concerned citizens, Ministry staff, local officials and media representatives.

PUBLIC PARTICIPATION PROGRAM

A systematic program of public participation was designed based upon the specifics of this project and experience gained in previous studies. The principal objectives of the program were:

1. to provide some basic background information on the importance of the issues to interested people and groups in four designated areas: Kitchener-Waterloo, Guelph, Caledon-Mono-Erin, and Uxbridge -Stouffville; Sudbury and Ottawa were added later.
2. to present to the people of these areas what the Working Party sees as the main elements of the problem and some elements of solutions to the problem;
3. to solicit from interested people and groups any additional aspects of the problem or possible solutions and how much importance they think should be attached to these elements of the problem and possible solutions;
4. To accomplish the above in a manner which is clearly open for anyone interested to both obtain information and contribute their ideas;
5. to foster positive contributions useful to the planning process and the formulation and selection of policy options.

To achieve these objectives, a program of work was developed including the following:

1. a four-page tabloid was published in the principal newspapers in each of the six locations, providing a total circulation to over 170,000 households, (see Appendix 2A).
2. an Open House was held at each location staffed by Working Party Members and Ministry officials. Typically, Open Houses ran from 2.00 p.m. to 9.00 p.m. and included 20-25 display panels, a continuous slide show, the recording of participants' comments by Working Party members, the completion of a response form concerning the nature of the problems and possible solutions (see Appendix 2B). Refreshments for visitors were provided.
3. posters throughout each community and display advertising in local papers were used and spot announcements on radio stations where appropriate; news releases with pictures of Working Party members living in the area were also distributed and usually published.
4. invitations were mailed to local groups requesting briefs and the attendance of members at the Open Houses.
5. mailed coupons from the tabloid and responses from the Open Houses were tabulated and analysed (see Appendices 2E, 2F). Open Houses were held in the following locations:

April 12 - Caledon, April 28 - Kitchener, June 15 - Sudbury
April 27 - Guelph, May 18 - Goodwood, June 16 - Ottawa

During the program, sections of the tabloid and Open House display were revised to provide the specifics for each area. Bilingual posters were used in Sudbury and Ottawa, in accordance with Regional and provincial policies. An impressive file of newspaper clippings accumulated during the program. There was a considerable proportion of balanced news coverage and editorial support as well as some partisan statements.

ANALYSIS OF RESPONSE

Given the objectives set for this program, the quality of response was of greater concern than the sheer volume of mailed replies or visitors to the Open Houses. However, the numerical response was as follows:

	Caledon	Guelph	Kitchener	Goodwood	Sudbury	Ottawa	Total
Open House Visitors	250	75	100	150	25	200	800
Coupons Completed	72	40	61	59	34	37	303
Written Comments & Open House Records	136	38	45	70	9	37	335

Participants were asked to rank some 14 aspects of the mineral aggregate problem, including cost, ugliness of the site, final use of the site, legislative confusion, noise, vibration, dust, truck traffic, safety hazards, lack of municipal compensation, wayside pits, licencing procedures, loss of property rights, changes in property values and environmental damage. They were also asked to rate five possible approaches to solving the problem, from doing nothing to provincial take-over, using other sources, provincial control through official plans, local planning of supply and demand and provincial-municipal co-operation.

The difficulty of ranking the 14 aspects of the problem identified by the Working Party as important led about half the respondents to simply check the boxes provided rather than insert numerical ratings. This complicated the analysis of the results but despite this unexpected development, the same basic pattern of priorities emerged. (see Appendix 2C.)

Initially, replies were tabulated separately for occupations and for smaller geographic areas. Since no major differences emerged and the numbers were small, these units have been consolidated by the Open House locations.

RESULTS

When the results from all areas are consolidated the following is evident:

- priority problems are the ugliness of abandoned and existing pits and quarries, the damage done to the environment, truck traffic on the roads and the final use of the site after operations have ended.
- Provincial-municipal co-operation is the preferred approach to solving these problems, followed by provincial control through official plans.

Appendix 2

The rich body of comments and suggestions received from over 330 concerned citizens (see Appendix 2E.) has been analysed into its major themes, as shown in Appendix 2F. Transportation issues appear to be as important to respondents as concerns about pit operations. Rehabilitation is a major theme for the future, together with restricting the size and number of operations as part of an overall provincial land use policy. The main results for each area are reviewed below.

Caledon Area

The principal problems identified by respondents from the Caledon area were truck traffic, environmental damage and the ugliness of abandoned and existing operations. Noise and vibration, dust, changes in property values and legislative confusion were also of considerable concern.

Provincial-municipal co-operation was the first choice solution for half the respondents who then split evenly for their second choice between provincial control through official plans and local supply-demand planning.

Other issues which generated substantial support were road maintenance, effects on the water table, the need for ongoing rehabilitation and limiting development of new pits until current ones were worked out. Considerable disbelief was expressed at the Open House that anything would actually happen as a result of the Working Party's efforts. Nevertheless, it is impressive that more people came to this Open House (250), returned response coupons by mail or at the Open House (72) and attached written comments (54) than at any other location (see Appendices 2C and 2D).

Guelph Area

The main issues noted by respondents in this area who checked their replies were the final use of the site, changes in property values and confusion over legislation. Those who ranked their answers gave priority to the ugliness of operations, the rising cost of aggregate and environmental damage. (The reasons for these variations are not clear.)

Provincial control through official plans is rated equally with provincial-municipal co-operation as preferred solutions to the problems.

The Open House in this case had a substantial proportion of pit operators. This gave it a rather different character than the first meeting and may explain the differences in ratings with the Caledon area results.

Waterloo Area

The ugliness of operations and their damage to the environment were ranked by residents of Waterloo Region as the most serious aspects of the problem. The final use of sites, legislative confusion; truck traffic, property values and dust and vibration were also important.

Provincial-municipal co-operation was clearly the preferred solution, followed by provincial control through official plans.

The Open House visitors covered a wide range of interests, but the rural areas were under-represented. More use was made than previously of the flip chart for visitors to publicly record their comments and suggestions.

Uxbridge Area

Respondents from this area agreed with those near Kitchener in rating the ugliness of operations and damage to the environment as the most important elements of the problem. Following these closely were the final use of the site, legislative confusion, dust, vibration and noise.

Again, provincial-municipal co-operation is the preferred solution, followed by provincial control through official plans.

At the Open House, visitors were more understanding than early predictions had suggested, particularly in view of the impact of the industry in the surrounding area.

Sudbury Area

Damage to the environment, the ugliness of pits and quarries and the final use of worked-out sites were the main concerns expressed by residents of the Sudbury area. The preferred solutions for the problems were provincial-municipal co-operation, followed by provincial control through official plans.

At the Open House a substantial proportion of the visitors were connected with the industry. The problem of blowing sand was the most frequent local complaint.

Ottawa South Area

People in the southerly part of the Regional Municipality of Ottawa-Carleton saw the main issues as legislative confusion, dust from trucks and operations and noise and vibration. There was almost unanimous support for provincial-municipal co-operation as the solution for these problems.

Major concerns at the Open House were the removal of top soil and blasting operations; some 200 persons with a wide range of interests attended.

OBSERVATIONS AND SUGGESTIONS

Since our six months with this project is short compared with the accumulated experience of the Working Party on the subject, we are reluctant to formulate firm conclusions and recommendations. Nevertheless, the following comments may be useful; they are confined to the public rather than technical aspects of the problem.

Observations

1. The majority of respondents seem to agree that the aggregate industry in their area is necessary and should continue, but under conditions which would assure local residents of an acceptable quality of life.
2. The intent of the Pits and Quarries Control Act was generally supported but its enforcement was criticized.
3. The Open Houses provided an effective forum for the conversational exchange of concerns and ideas between government officials, members of the industry and local residents. Despite the accumulation of grievances built up over past years, face-to-face contact led to greater understanding and, in some cases, to more considerate practices by operators.
4. In each area there was at least one local organization which acted as a vehicle for the concerns felt by most of the residents. To solve many issues raised by residents requires a high level of inter-governmental co-operation e.g. between the Ministry of Natural Resources and the Ministry of the Environment; it is clearly difficult to design and implement effective controls.
5. The listing of elements of the problem and general approaches to solving it appear to cover most of the concerns and suggestions raised by respondents.
6. However, within this general framework, the public has raised a large number of specific examples and has detailed both the severity of the problems and their ramifications. Concrete proposals developed by the Working Party can be tested against these specific concerns as part of the policy formulation process.

Suggestions

1. The administration for the revised Act should include specific provisions for the enforcement of traffic regulations by the relevant police forces. Without a high level of performance in the control of truck traffic, the balance of the program will lack credibility and support from the public.

Appendix 2

2. Where it is lacking, a demonstration of pit rehabilitation should be undertaken in each major area and clearly marked like a demonstration farm. This demonstration may occur through the co-operation of an existing operator or might be done by the Ministry on an abandoned site. The design and budget of the program should be made public, perhaps through an annual field day or Open House.
3. The administrative process should contain representation from the principal citizen groups active in each area. These citizen groups will provide a continuous two-way communications link between the Ministry, the industry and concerned citizens. They will also perform a local monitoring function. Through them, many misunderstandings can be clarified and problems solved before they reach crisis proportions.
4. Operators should be encouraged to combine the Open House concept with an annual field day to enable the interested public to become familiar with the operation, recognize the operator's problems, observe progress in rehabilitation and make suggestions for further improvements.
5. The confidence of legislators and the interested public in proposed revisions to the present Act will be strengthened if they can see some examples demonstrated and tested during the next six months. Certain events occurring after the Open Houses have already enhanced the credibility of the Working Party. Some continued relationships with key persons and groups should be considered to maintain and develop co-operation which seems essential for the successful passage and implementation of new legislation.

CONCLUSION

This has been a challenging project to design and implement; it has also provided considerable satisfaction as constructive relationships developed between Working Party members and concerned citizens and useful suggestions were received.

This program has demonstrated how constructive citizen participation can contribute to the formulation of government policy even when matters have become controversial. Hopefully, it will provide a model for other Ministries to use in dealing with other issues.

However, we must recognize that the success of this program can only be fully assessed after policy recommendations are formulated, legislation is passed and implementation occurs.

APPENDIX 2A

DISTRIBUTION IN LOCAL NEWSPAPERS OF TABLOIDS ADVERTISING OPEN HOUSES

Areas	Newspapers	Circulation
Caledon	Erin Advocate	2,100
	Orangeville Banner	6,000
Guelph	Guelph Mercury	18,000
Kitchener	Kitchener-Waterloo Record	61,000
	Cambridge Daily Reporter	13,600
Goodwood	Uxbridge Times-Journal	4,000
	Stouffville Tribune	8,500
Sudbury	Sudbury Star	33,500
Ottawa	Ottawa-Gloucester Guardian	9,000
	-Nepean Clarion	13,000
	Stittsville News	1,800
	TOTAL	170,500

NOTE: An additional 1,000 copies were produced in each location for use through local libraries, the Open House etc.

WHAT DO YOU THINK ?

The Working Party wants to know what you think and feel about these problems and the possible approaches to them. Only **YOU** can give us this information.

- Please review the statements below, which are based on material found on the pages of this publication.
- Have we left out any important aspects of the problem? — If so, tell us about it in the space provided or on a separate sheet.

- Are there any other ways to solve the problem which occur to you? — If so, describe them on the coupon or on another page.

- How important do you feel each problem statement is? Place "1" in the box provided beside what you think is the most important statement, "2" beside the next most important and so on.

THE PROBLEM

"The way I see it, the important aspects of the problem of mineral aggregate supply are:"

- ☐ a. The rising cost of aggregate to consumers
- ☐ b. The ugliness of abandoned and existing pits and quarries
- ☐ c. The final use of the site after operations have ended
- ☐ d. The confusion of legislation and regulations
- ☐ e. Noise and vibration
- ☐ f. Dust from trucks and operations
- ☐ g. Truck traffic on the roads
- ☐ h. Safety hazards
- ☐ i. The lack of compensation to municipalities
- ☐ j. The operation of roadside pits and quarries
- ☐ k. The slow, cumbersome licencing procedures
- ☐ l. The loss of property rights by those who own land with reserves of aggregate and who wish to sell it.
- ☐ m. The change in the value of property near pits and quarries
- ☐ n. The damage done to the environment
- ☐ o. Other: (Please write in)

POSSIBLE APPROACHES

How do you rate each of these possible approaches described ? — Place "1" in the box beside your first choice, "2" beside your second preference and so on.

- ☐ a. Do Nothing
- ☐ b. Provincial Take-over
- ☐ c. Use Other Sources
- ☐ d. Provincial Control Through Official plans
- ☐ e. Local Supply-Demand Plan
- ☐ f. Provincial-Municipal Co-operation
- ☐ g. Other (Please write in)
-
-



Mail this coupon within 10 days to:

Miss S.E. Yundt
Ministry of Natural Resources
Whitney Block, Room 6508
99 Wellesley Street West
Toronto, Ontario M7A 1W3
(416) 965-6371

So we can assemble responses from different areas and groups please provide the following information:

Name of your community _____

Township: _____

Your occupation: _____

If you would like to receive a summary of the final report of this study, please fill in your name and mailing address:

APPENDIX 2C

RATING OF ELEMENTS OF THE PROBLEM BY AREAS

Areas: Problem Elements	Caledon Checked (N-37)	Ranked* (N-35)	Guelph Checked (N-20)	Ranked* (N-20)	Kitchener Checked (N-33)	Ranked* (N-27)
a. Cost	5	2	3	7(2)	8	7
b. Ugliness	27(2)	11(2)	8	8(1)	25(1)	18(1)
c. Final Use	19	4	12(1)	5	20(3)	13(2)
d. Legislation	16	8	10(2)	3	18	8
e. Noise & Vibration	23	9	7	—	13	3
f. Dust	24	9	6	—	15	5
g. Trucks	30(1)	14(1)	9	2	17	4
h. Safety	23	4	5	—	16	2
i. Compensation	16	7	5	1	12	8
j. Wayside pits	12	—	5	2	13	—
k. Licencing	4	3	6	5	10	5
l. Property rights	8	3	6	5	8	1
m. Property value	22	9	10(2)	3	16	3
n. Environment	26(3)	11(2)	7	7(2)	24(2)	11(3)

*The number indicates how often this item was ranked 1, 2, or 3.

APPENDIX 2C, cont'd.

RATING OF ELEMENTS OF THE PROBLEM BY AREAS

	Goodwood Checked (N-30)	Ranked* (N-25)	Sudbury Checked (N-17)	Ranked* (N-27)	Ottawa Checked (N-11)	Ranked* (N-26)	Total Checked	Ranked*
a. 5	—	—	—	6	3	45	24	29
b. 24(1)	14(1)	4	13(1)	6(2)	5	94(1)	69(1)	
c. 20(3)	8	5(2)	10(3)	5	5	81(3)	45(3)	
d. 18	7	4	8	9(1)	10(1)	75	44	
e. 17	4	3	6	6(2)	8(3)	69	28	
f. 20(3)	5	5(2)	4	4	9(2)	74	32	
g. 18	8	4	3	3	45	81(3)	36	
h. 15	2	3	—	2	3	64	11	
i. 17	7(3)	4	1	3	2	57	26	
j. 12	—	2	1	2	1	46	4	
k. 8	1	1	4	4	4	33	22	
l. 13	6	3	3	6(2)	6	44	24	
m. 16	5	3	2	5	4	72	26	
n. 23(2)	8(2)	6(1)	12(2)	4	7	90(2)	56(2)	

APPENDIX 2D

RATING OF ALTERNATIVE APPROACHES BY AREAS

Areas:	Caledon (N-59)		Guelph (N-30)		Kitchener (N-41)		Ottawa (N-37)		Goodwood (N-48)		Sudbury (N-34)		TOTAL (N-147)
	First	Second	First	Second	First	Second	First	Second	First	Second	First	Second	
Choice:													
Approaches:													
a. Do Nothing	3	1	1	1	—	—	1	—	—	—	—	—	5 3
b. Provincial Take-over	6	3	3	—	3	1	2	—	2	4	3	3	20 12
c. Use Other Sources	11(2)	—	1	—	—	2	1	4	2	4	4	1	19 12
d. Provincial Control Through Official Plans	6	12(3)	10(2)	11(1)	12(2)	10(2)	2	11	12(2)	13	5(2)	9	55(2) 65(1)
e. Local Supply-Demand Plan	7(3)	13(2)	4(3)	2(3)	6(3)	3(3)	2	7	2	4	1	3	23(3) 33(3)
f. Provincial-Municipal Co-operation	26(1)	14(1)	11(1)	10(2)	19(1)	19(1)	18(1)	5	22(1)	3	17(1)	8	126(1) 57(2)

APPENDIX 2E

TRANSCRIPT OF RESPONSES BY AREAS

The responses are subdivided according to place of residence of the respondents.

Caledon Open House Record

Verbal Comments

Albion, Ontario

Water – DeBon pit.

Are pumping 400 gpm now lower. Three wells went nearly dry. Pit – 40 acres. Investigation – authority from W.R.C. Is this lowering water table? Is water being wasted to Lake Ontario? Why is it necessary to pump this much? Have dug three wells in last three years. Pit started February 1970, Lot 14, Concession 3, Albion Township.

Alton, Ontario

Ensure local control over zoning and designation – prevent encroaching penetration.

Alton, Ontario

Enforcement. Lack of rehabilitation. Trucks – two windshields.

Alton, Ontario

Trucking – e.g. on the way to this meeting a gravel truck pulled out into the highway without stopping and allowing us the right-of-way. Broken windshields. Why aren't loads covered?

Alton, Ontario

NE corner of Caledon Township Alton – high water table. Should it be disturbed for gravel or rock extraction? Water more valuable than gravel. Not much rehabilitation in Caledon Township.

Alton, Ontario

Bring in from longer distance and less sensitive area. Set certain areas aside despite gravel there. Finish off present pits, rehabilitate and close. Costs being paid now in social and environmental terms – greater than increased \$ cost of hauling from outside. More effort into recycling building materials, use of slag, new resources, better transport system (rail?), down grade building code requirements.

Alton, Ontario

I feel this should be a provincial responsibility without questioning the integrity of that particular department. The people of this community feel they have been oriented and favour of the gravel industry and have failed to protect our interest as a community.

Alton, Ontario

Concerned about lowering of water tables if extraction carried out below water.

Alton, Ontario

That the NEC have total control over Pits and Quarries in their Planning Area. Maintenance of haul roads.

Ariss, Ontario

Pilkington – problem with P & Q Act. Nine small pits. Year ago cost \$1.10; now cost \$2.90. Started to get a licence six months ago for two pits.

Belfountain, Ontario

That there be no more areas zoned for gravel in Ward 1, Town of Caledon. That control of gravel industry be under government responsibility with more consideration for the people affected.

Bolton, Ontario

Seven people have had to deepen well in last three years. Devalued property – industry should have bought bylaw zone. Roads.

Caledon, Ontario

Panel – Province responsible to provide material – go on with least disturbance to people of the Province of Ontario. Areas should be explained to residents moving in re official plans and zoning bylaws.

Caledon, Ontario

Restrictions of development. Land values re zoning gravel reserves – depreciation.

Caledon, Ontario

Need more *local* control. Municipalities currently ignored. Provincial-Municipal approach good if sufficient representation. Lack of compensation for lowered property values near pit. Lack of rehabilitation.

Caledon, Ontario

Need to pave roads for one mile. Tail gates when empty bang continuously – when loaded engines roar accelerating. Six different trucking companies involved at one time. After they complain finally calcium is put down. Awake at 5.20 a.m. and no relief. Windshields cracked frequently.

Caledon, Ontario

Lack of control over truck operations – driven dangerously, fast without due care towards other road users (uncovered loads – I have had cracked windshield and two broken headlights through loose stones from trucks). Long working hours – intolerable noise. Need for restoration of depleted pits and quarries. Shielding operations from visible parts of community e.g. roadways. Taxation of operation to reduce local taxes. If we have to put up with inconvenience, let us see some benefit. Much of the aggravation could be overcome by placing the onus on the pit operator to co-operate with local by-laws.

Caledon, Ontario

Franceschini Bros. pit near Caledon Village dust – no clothes on line, can't use their back yard. North part to be extracted – houses on three sides of it even closer to houses prevailing winds are wrong. Rehabilitation. Working right inside the village limits. Small trees of no use.

Caledon, Ontario

Put on controls that will hold in court. Rehabilitate sooner – mine further from established dwellings in area. Work hours reduced from 7.00 a.m. to 7.00 p.m. Tidy up the entire....of pits.

Caledon, Ontario

3rd Line Caledon, Lot 14 both sides of the road – speed trucks drive too fast – have to stop drawing corn because it is not safe –pit itself doesn't bother them –truck.

Caledon, Ontario

Gravel trucks with no top. Most people have at least a windshield and/or headlights broken each year. Recommend instructions to use tarps.

Caledon, Ontario

Map re soil capability for agriculture. Why not add an overlay so that you can see conflict between agriculture and aggregate? Caledon East, Ontario

Concerned about transportation by trucks and all the dangers connected to it. Realizes the material must be extracted – use rail transport.

Caledon East, Ontario

Biggest single complaint is truck operation – physical hazard, air pollution, energy cost. Should not permit operation unless large – and then rail it. Could subsidize rail at 1 ¢/ton mile to compete with trucks.

Erin, Ontario

I do not want gravel operations close to Erin Village, especially or other villages or areas that are fairly densely populated.

Erin, Ontario

Once a decision has been made to open a new pit, any loss in property value due to the pit should be compensated for, providing the person moves. Individuals should be compensated – not townships. Road repairs due to trucks should be charged directly to pit operators. Borrow or wayside pits should possibly be under the control of the local municipality. Large pits should be under the jurisdiction of a committee chosen by the Department of the Environment. Re Large Commercial Pits: establish where the gravel exists (in large doses) – to the exact lot and concession. Set up some scale of acceptability – good road accesses +1, 2, 3 points, high wind velocity – 1, – 2, – 3 points, local population – 5 points for every X number of people, trucks per hour – 2 points for every X number of trucks. Scenic Beauty – points, number of public parks, in area – points lost for every park.

Proximity to area being serviced (Toronto, Hamilton) plus points. When you're all through the pit with the most points could be the first to be opened. Set up the order of pit openings for the next twenty or thirty years. At that time repeat the process. Make-up of Working Party!: I would like to have seen some agricultural people, tourist people (parks and recreation) and some citizens' groups represented. (When trying to talk with Mrs. Bulmer she referred me to someone else and disappeared.) Her brief on gravel I guess says it all as far as she is concerned. Possibly gravel companies

Appendix 2

should be forced to move up north where there are few people. They should then be compensated X¢ per ton until all companies were there. This would keep them competitive. There is no proof that people are not prepared to pay for peace and quiet. Maybe some sort of major government control will have to be the answer. No company should be allowed to open a new pit without rehabilitating their old pits. Including the ones before the pits and quarries act. These are only my thoughts.

Hillsborough, Ontario

Gravel operation – to see that more gravel is opened up as it is needed. Licenced pit in Erin.

Islington, Ontario

Concern for preservation of the Bruce Trail environment. Concerned that at least more than 300 feet from the Niagara Escarpment face is left for trail associations. Write to him and he will send a submission. Bruce Trail must be protected. Wants location of Bruce Trail preserved – should present views to NEC.

Montreal

Work out existing pits before opening new ones – rehabilitate worked-out sites.

Orangeville, Ontario*

Why not use gravel available on road allowance instead of only extracting either side of road allowance.

**Owner of potentially extractable property.*

Orangeville, Ontario

Whatever is done – make it uniform throughout the Province.

Palgrave, Ontario

Lack of interest of local council to the concerns of the ratepayers re noise, dust, truck traffic speeding and overloading. Also, the condition of pit – dust, weeds unsightly surroundings. Road unfit for heavy trucks and actually dangerous to residents. Pollution of air danger to trees, gardens and humans. Removal of calcium placed by ratepayers at their expense when grading road necessary so much more often.

Pilkington Township

Small operators, different licence, close inspection, different licence for local use, too costly to apply for licence at present, can't compete with large operations, make licence application easier but more inspection, during operation, licence invoked if not good operation.

Toronto, Ontario

Ratepayer association representative. Society should preserve as much recreational land as can afford. Catalogue resources, identify sensitive areas.

Toronto, Ontario

Denied right to inspect site plans at Queen's Park of new operation adjacent to own Caledon Holdings.

Caledon, Ontario

Need pits for commerce. Some problems but not as bad as some people say. Not as ugly as some other things.

No location

Without a provincial agricultural policy, problems regarding aggregate cannot possibly be solved. Agricultural policy should be developed immediately.

Written comments and letters

Albion, Ontario

We would like to know why Albion S & G is allowed to pump approximately 400 gals. per minute while farmers are forced to dig wells or haul water, at their own expense. The officials say A & S Gravel is complying with regulations. Has anyone ever checked weekends and holidays?

Alton, Ontario

I think the power of gravel pits over our elected government must be curtailed.

A Niagara Escarpment Commission has been set up supposedly to retain and protect the environment but, Mr. Bernier has cunningly withheld from the commission any control over gravel pits. What is more defacing than rampaging gravel pits and their glaring aftermath?

I am convinced, in spite of all the public relations staged by the Working Committee at Caledon yesterday that this is nothing but a red herring and that gravel interests will continue to lobby their way to the ruination of Caledon. Our council is also hamstrung. We have more than our share of gravel pits in Caledon.

Alton, Ontario

Compulsory notification to prospective home buyer or builder of potential gravel area. Compensation to relocate if operation is begun or expanded.

Alton, Ontario

I have over many years lived in this Township and 15 years on Caledon Council have had to make many decisions on gravel during that term. There were about twenty people in the Township who were strictly opposed to gravel pits and were very vocal about it which I am sure you will have many briefs about this industry from them. One of these people sits on Council at this time and according to the press had had a lot to say about gravel pits and their control. I think the operators of pits can do a better job of reclaiming worked over property than is done at present. Best of luck.

Erin, Ontario

Possible approach: Increase output from existing pits and deplete these pits quickly – then open new pit and work it 100% – you would therefore have fewer pits in operation at any one time but the output would increase – pits would also get rehabilitated quicker.

Erin, Ontario

Has anybody made a study of the residue gravel left in pits that could be extracted. It is obvious that it is cheaper and less bother to move on to a new area but why must the residents of this province have to live in the midst of ugly craters? I've lived near the craters of Caledon Village for almost 12 years – I understand the Smythe operation there began over 40 years ago – the old craters are still there and Armstrong Bros. now keep digging new ones.

Erin, Ontario

I would like to make some initial comments regarding the Ont. Mineral Aggregate Working Party and its objectives. My first thought is how can the public get a fair hearing and input into any forthcoming reports when all of the "Working Party" is made up of aggregate people or people who are sympathetic to this industry (except Mr. Symes and possibly Mr. McMullin). In order for your group to have any credibility as to fairness with the affected public you must have representatives from those areas where individuals have been adversely dealt with by the gravel industry and if this group is at all sincere, allow them to sit and discuss as members of the group, how the unfairness can be rectified.

Along the same line, I feel that the first task or recommendation your group can make is how to build integrity and truthfulness back into the industry's dealings with the public. Let me give you one small example of what I mean. In November I sat through 3½ weeks of O.M.B. hearings listening to a major gravel company tell (under oath) their plans to mine and rehabilitate 400 acres in 15 years and be gone. As yet no decision has supposedly been made, yet over a month ago, this same company was trying to buy the adjoining 400 acres from another farmer. They aren't just doing this on the chance that they will get an approval – they know they will. They also have no intention of leaving in 15 years – more like 30-40 years. To put it quite bluntly, this particular gravel company is a liar with very strong political power in Queen's Park. So with dealings like this going on how can people believe Proctor & Redfern Reports, potential shortages, Pits & Quarries Act, or Aggregate Working Parties so that they will be treated fairly. As yet they haven't been so why should they believe that they will in the future.

I will be at the April 12 meeting in Caledon and if your group is at all sincere in helping not only the gravel industry, but more importantly the people who are being abused and financially hurt by these pits, I will be pleased to spend as much time as you would like, to give you help and information on my experiences over the past three years with the hundreds of people in my area who have been fighting the introduction of this pit that I mentioned.

Erin, Ontario

Why does the Ontario Government ask my opinion when it has already made the decision – a costly whitewash. Those decisions are simply a showcase effort to con the unwitting who pay their salaries and had faith in the honesty and integrity of those elected. In the case of Hydro, gravel, and forestry – by the way, who decides what is good for the people? Not just for the people! Many of us have lost all respect for all who have been entrusted with the future of Ontario – the great and glorious place to live – for those with no conscience.

Because the enclosed questionnaire did not provide a date of publication but did order that it be received by you within ten days, I would request an acknowledgement from you of its receipt and also to know whether my humble thoughts will be considered as within your time limit.

Appendix 2

Caledon East, Ontario

If the aggregate industry could be operated with minimum visible presence, the vast amount of objection might be reduced to an acceptable minimum.

It seems that the most obvious objection is the prodigious amount of TRUCK TRAFFIC generated. According to Ministry maps, the heaviest aggregate deposits are more-or-less strung out in a line. Any major deposit developed has to be operated for a number of years. It is logical that the necessary transport could be provided much more satisfactorily by railway. A siding should be run into each pit operation, and the cars loaded directly. A main line (probably presently extant) would connect all pit locations.

The pit operators will object by saying that this will make the cost of aggregate too high, because the railway will set the rate. What they really mean is that the truckers have to take what the operators offer. It may be that this will result in a slightly higher cost to the end user, but he is the one who benefits from the material supplied. As it is now the general taxpayer subsidizes this cost in the form of road construction and upkeep, greater traffic hazards and inconvenience, etc. Railway lines will cause inconvenience to a much smaller number of people.

Get half of the trucks off of the road, and the objections will shrink dramatically!

The next objection seems to be NOISE AND DIRT. Operators should be restricted to 10 or at the most 12 hours per day for operations. Many seem to operate round-the-clock in the busy season. The hours should also be spelled out: say 7.00 a.m. to 5.00 p.m. This would help to reduce truck traffic.

DIRT is more difficult to control, particularly in the dry summer weather. In some cases this may be largely a matter of poor housekeeping. Some operators try to be good citizens, while others do not care a rap. Severe enforcement of regulations against the dilatory will either force them to clean up or get out. More objections will disappear if you can make some yardage on these points.

Depressed property values will always attend in the immediate neighbourhood of such heavy industry, but if the above points are vigorously exploited, the applications to Committees of Adjustment for lowered assessments will be reduced, resulting in more satisfactory tax revenues for the municipality. This will also help to lessen the opposition of local councils to applications for new licences.

One sore point, however, is wells. There are numerous accounts of farm wells which have been good for years suddenly going dry when an extraction operation is started nearby. I suspect that more than one pit operator has used this method to drive a farmer off, so that his gravel deposit can be worked as well. Surely part of the application for a licence should include a survey of the wells in area likely to be affected, and the posting of a surety bond by the applicant to indemnify the well owners.

Abandoned pits: Why not assess all pit operators say 5¢ or 10¢ per ton, payable monthly to the Ministry? This money could be deposited in a trust fund, for use in rehabilitating the pit concerned when it was worked out. Eventually a significant surplus would be built up, and this could be used towards rehabilitating old abandoned pits which presently mar the countryside. Some of these old pits were probably worked out by the operators of other present-day pits, anyway. Unless some effort is made in this direction, these eyesores will last indefinitely with continuing loss of revenue to the municipality concerned. Filling them with Toronto garbage is not the answer either, but don't get me going on that one!

Provincial-municipal co-operation has to lead the way. Queen's Park has to treat the Council of Po-dunk Centre as equals, and not with an air of condescension, keeping them completely in the dark (or misleading them altogether) until the locals suddenly discover that a totally unacceptable operation has been licensed, and that they have been had once more by the bureaucrats from the big city who think they have all the answers.

Sincere dialogue will reduce other objections, and even when unpopular decisions have to be made, at least those affected can feel that they have had fair consideration, particularly if they know their interests and the environment will be protected as far as humanly possible.

Caledon, Ontario

Municipality have more control. Owners should have to apply for permit through a board such as the Severance Board where others would be aware of what is going on.

Caledon, Ontario

The meeting re gravel pits their advantage and disadvantages being discussed Monday, April 10 in Caledon Village, these are my comments and requests.

Living a few lots above one pit, the trucks using the few lots between same and 15 Sideroad, there are three complaints which I think are reasonable and won't be difficult to remedy.

1. Dust and pollution – the road to be kept sprayed, these past summers have been bad, crops, hay, pastures, lawns and last summer could not keep windows clean at all, frames had every inch filled with dirt and sand. One couldn't sit on front lawn or side one, house faces east. Another problem, the

long hours; surely hours would be shortened somewhat, maybe a later morning start. The tandem trucks make such a noise.

I am not against pits and gravel has to be available; citizens must be protected as much as possible. The pit on Third Line has been in operation for years and over the years has been a benefit, now with so much demand something will have to be done regarding dust, which can be resolved, and the early morning hours. (I am a taxpayer.)

Hillsburg, Ontario

The problem – Why is there no representative from agriculture on the Working Party?

What is going to be more important at the end of this century, a cheap supply of gravel or readily available food? Unless we become a race of budgie birds the answer is quite obvious.

If you dig up the backyard now where do you put the garden when you really need it? Canada is a large country but there is really very little arable land. You can force aggregate producers further north in Ontario but not farmers.

There will always be a spill off of population from the large cities to the country so that there will always be conflict between producers and landowners.

Landowners really have no way of knowing where a pit will spring up next. The time element involved with aggregate producing is intolerable. In most cases a pit will run the lifetime of adjacent land owners who will never live to see the “lovely lake” where the pit used to be.

Possible Approaches – Rather than tear up the backyard now and find that in 20-50 years we still have to go farther afield for aggregate, would it not seem wise to do some long-range planning now.

For example:

The Provincial Government could obtain vast tracts of land in sand and gravel rich areas that are more remote from the market but also cheaper to buy. Expropriate as necessary at market value plus a percentage for disruption of lifestyle. Properly berm and isolate the area (i.e. no building within say a quarter mile distance of the perimeter).

Establish rail haul facilities to the site. Employ local labour where possible. Allow aggregate producers to mine an area in accordance with their ability to do so. Establish a fee to be paid by the producers for the use of the land. Pay a fee to the local municipality. Mine out an area as quickly as possible and then rehabilitate and restore the land to a suitable use.

Closer to home

Allow existing pits to operate to the extent of their licence but place a time limit on the operation of say five years. Perhaps this would encourage the producer to mine out his area as quickly as possible so that neighbours won't have to spend the rest of their lives with aggregate associated problems.

Let's see some examples of this progressive and final rehabilitation that the Pits & Quarries Control Act talks about.

There should be financial aid available to land owners who have to spend large sums of money to protect their homes against well to do producers who are “just fishing”.

If there are to be any more permits or licences granted in the populated areas of the Central Ontario Region landowners who are affected, other than those who build in extractive areas, should have the right to demand expropriation at market value plus a percentage to cover loss of lifestyle.

In light of the projected world food shortage a potential producer should be compelled to prove to a board of agriculturalists that his land is totally unsuitable for the growing of crops or grazing of beasts. Municipalities and adjacent landowners who elect to stay should be reimbursed in the form of a “nuisance fee”.

Truckers should not be paid by the load, all loads should be tarped. Haulage routes should be definitely established. All trucks should be steam cleaned before leaving the site to improve their public image and remove all loose aggregate.

Finally we must prepare for a phase-out of aggregate mining in populated and arable areas and start looking to more remote areas with less environmental drawbacks. The day of cheap sand and gravel is over.

Orangeville, Ontario

1. Legislation that would severely penalize carriers that do not have covers over their loads. Legislation to eliminate carrier financial remuneration by the load. Drivers or owner drivers to be paid on an hourly basis only. Legislation that would penalize both the driver and registered owner of those apprehended for speeding or other traffic violations. Legislation in conjunction with municipal judgement that would limit exit and entry routes to specific quarry sites.

A thorough examination of the company or individual; with respect to past use and rehabilitation of pits operated prior to the granting of a permit. Those granted permits, no second parties, are solely responsible for upholding the conditions of issuance. Rigid hours of operation and inspections as deemed necessary.

Appendix 2

Orangeville, Ontario

My ideas on gravel for what they are worth are: 1. When an area is opened for gravel all gravel deposits in that area should be used before moving to another area

2. Banks of earth and a few poplar trees are not rehabilitation. Why do hundreds of acres have to be destroyed before starting to restore the land. Couldn't this be a continuing process so that when a deposit is worked out you would hardly know it had been there.

3. Why not mine road allowances? Why leave a road sitting seventy feet or so on top a ridge of gravel? Couldn't these roads be dropped to the same level as the finished deposit.

The whole problem comes back to planning. Planning as I see it today is just a piecemeal patchwork. Settlement in Ontario began and developed in the better agricultural areas and has continued to grow there like a cancer since. Why can't industry and population growth be redirected to other areas of the province where it could be less strain on the environment. Why do we just because our fathers settled in the "Golden Horseshoe"? have to continue to destroy the goose that laid the golden egg.

Terra Cotta, Ontario

1. Population Growth north of the City of Toronto is uncontrolled and monstrous. The "hinterland" which is necessary for any city to breathe, is destroyed in the process. (By receiving pollution and by the gradual depletion of whatever resources are available such as fertile farmland, gravel etc.)

Solution: Develop incentives for decentralization.

1. As industry goes where the people are and people go where the the industry is, the vicious circle will go on forever unless broken, therefore:

2. Disallow new industry to locate in or near this area by tough zoning legislation, by strict anti-pollution laws etc.

3. Give meaningful tax incentives to industry who is willing to locate in areas with low density population.

4. Let people who want to live in big cities pay the full costs of big city living – pay no subsidies from provincial or federal sources any more – cheap gravel is just another form of subsidy paid for by us suckers living in the country.

As super cities are eventually destroyed from within anyway, and New York City could serve as a good example, why make a wasteland out of the surrounding areas to hasten this process?

Terra Cotta, Ontario

The Working Party's first priority should be: allow people their choice of living life in rural settings without disruption of peace and nature for developers! If people in a certain area VOTE against gravel, unless there is a tie vote, allow them this freedom of choice; otherwise our democratic ways of life, as you will have proved if your first priority isn't as I stated on the other side, are hypocritical and your conscience will bear this responsibility in one way or another!

Allow people in rural settings to live in peace. Dig under existing pits. Don't increase problems. "Increasing speed of life is not everything".

Guelph Open House Record

Verbal Comments

Drayton, Ontario

The mechanics of the Pits and Quarries Act. There is not nearly enough flexibility in the Act as far as wayside pit permits. They require about three weeks to obtain and have to be approved by the Ministry in Toronto. A lot of time the worked is called by a County or Township and the work can be started soon but you can't because you have no licence (especially in the spring often ½ bad). Sometimes the pit runs out or the material is not acceptable and you must go to a different location not in three weeks but tomorrow. A suggestion – let the counties, not townships issue wayside permits where it can be done quickly if necessary. Not apply to Hespler, send it to Toronto, back to Hespler then to us.

Erin Township

Need a balance between aggregate needs and agricultural needs. Mine only one pit at a time. Progressive rehabilitation of portions of pits.

Erin, Ontario

I favour an overall land use policy for the province of Ontario which would take into account not only findings of Ontario Mineral Aggregate Working Party but also findings of other Ministries, particularly Agriculture and Food, Housing. In fact, all who are in competition for land use. I think one aspect of land use should not be made in isolation from the others.

Guelph, Ontario

Why not require operator to have a performance bond, which would be used for rehabilitation purposes if operator leaves pit unrehabilitated.

Guelph, Ontario

The pressure is for maintaining or increasing the present profligate waste of a non-renewable resource. The past and present operations are a positive disgrave. We must make haste slowly and not be bulldozed into rash decisions. If more operations are to be opened, rail transportation must be considered rather than truck operations. Abandoned pits must also be cleaned up to show there is some intention of rehabilitation; operators have used every loophole available to avoid doing anything.

Extraction should be on an area basis rather than numerous areas being used one at a time. Rural roads should not be used for heavy truck traffic, they are not built to required standards.

Guelph, Ontario

Is the establishment of spot quarries in a number of locations in an area. One deposit in an area should be developed even if a number of companies are involved plus the provincial government.

Puslinch Township

Brick companies, cement, gravel should all be located near rail where possible – ship by train. Other alternatives need to be considered e.g. could material be transported by underground pipe?

Puslinch Township

At OMB hearing, trucks were told to use paved road. They are now using gravel roads. Would like to see material moved by rail.

Puslinch, Ontario

I feel that gravel pit owners should be issued a licence to operate a gravel pit for a limited period of time only of which the issue of an extension of the permit should be reviewed.

Puslinch Township

Interested in decentralization of population to north. Puslinch Township altered official plan to include gravel pits without telling residents. People should know about gravel reserves before moving into community.

Puslinch Township

Would like the panels to be displayed and representatives of Working Party to come and speak to them, Women's Institute.

No address

Truck traffic, noise, pollution, ravishing of country side, quality of life.

Written Comments and Letters

Ariss, Ontario

I feel cost of aggregate should be high enough to rectify any damage e.g. certain percentage for mileage any truck travels for road building etc. and higher property taxes. Instead of using too many pits exhaust one and immediately rehabilitate area.

Elora, Ontario

I was employed by the former Dept. of Mines and Northern Affairs for a period of approximately 20 years, retiring in July, 1971. My responsibilities during these years consisted of primarily the inspection of pits, quarries and metallurgical plants in Southern Ontario for compliance with the requirements of the Mining Act.

The Pits and Quarries Control Act 1971 was concerned with two main problems of that period (a) the rehabilitation of operating and abandoned pits and quarries to control the ever increasing number of local eyesores (b) the protection and preservation of the Niagara escarpment. This might be considered as a commendable start by one Ministry to a very complex and ever-changing problem which does not meet present day requirements.

Appendix 2

I wish to commend your effort along with the voluntary and many talented working party for the time spent to improve and render pit and quarry operations more acceptable to the general public and wish you every success in this complex undertaking. I am enclosing a number of items and suggestions that will possibly be of interest to the working party. I would be pleased to assist in any other way possible....I would appreciate receiving a copy of the final report of this study.

The following items should be considered separately for all four stages of a natural resource operation (mine, pit, or quarry); namely:

1. Exploration
 2. Development
 3. Production
 4. Closure and final rehabilitation
1. Complete co-operation between the Ministry of Natural Resources, the applicable municipal council, the owner or operator involved, is necessary at all times to assure an operation most acceptable to the general public.
 2. The municipality should receive some revenue from producing pits or quarries within its jurisdiction and also provide some reward for exploration and locating of suitable deposits. The municipal councils should assess their reserves at the earliest possible date check for proper zoning to protect all deposits for use before they are lost to urban expansion. The district engineers and geologists with the Ministry of Natural Resources could assist and advise when requested.
 3. The Ministry of Natural Resources would be responsible for the following: (a) inspection of all pit or quarry operations for compliance with the requirements of the Mining Act.
(b) formation of a committee of one representative each of all ministries concerned for the final approval or rejection of the application for a permit to operate a pit or quarry after it has been tentatively approved by the applicable municipal council. The final approval and issue of permit, or rejection with reasons should be completed within a period of two months or less.
(c) provide consultation or advice to municipal councils or operators when requested.
(d) collect revenue and/or deposits from pit or quarry operators to ensure satisfactory rehabilitation of the property on termination of production operations.
 4. The practice of requesting a sufficient number of copies of the site plan outlining proposed development, production and rehabilitation procedures for the property along with the application for a permit should be continued. Any later changes requested to the original approved site plans should require an official approval. Any operator who submits incomplete site plans or lacks sufficient financial backing to properly develop the property and install an approved processing plant should be corrected or eliminated at the permit approval stage.
 5. The development stage of a property is most important, when every precaution should be taken to minimize traffic, dust and noise problems, as well as to prevent any decrease in value of the adjoining properties through creation of an unsightly operation. The top soil from the areas designated for production should be progressively removed and stockpiled to form a berm along critical areas of the property boundaries. Where insufficient top soil is present to complete rehabilitation requirements the planting of trees or hedges at an early date should be requested. Every consideration should be given, where electric power is available, to the removal of sufficient material to install the primary crushing unit on the quarry or pit floor, where the crushed material can be conveyed to a surface surge pile prior to further processing. This has resulted in improved traffic, dust and noise control at Nelson Crushed Stone (Flintkote of Canada), Toronto Brick (Don Valley Plant) and other plants using this procedure.
 6. Seismograph and noise level readings along critical areas of the quarry boundaries should be made and recording in the blasting record for each quarry blasting operation. Periodic noise level readings for pit operations should be required when considered to be necessary.
 7. As the removal of material in various areas is completed the establishment of an urgently required sanitary landfill site could be considered if approval by the Water Resources Commission is secured. Some operators are finding it to be quite beneficial to offer accommodation for the disposal of clean fill, waste or rubble for revenue to assist in and offset rehabilitation costs (J. Sabiston Ltd., Unionville). Many other uses merit consideration and are required for the site plan. It is beneficial for rehabilitation to proceed during production eliminating the necessity of doing the whole job after the termination of productive operations.
 8. Small seasonal pit or quarry operators on private lands should be required to provide limited site plans and obtain permits (quarries on Caledon Mts., Owen Sound, Parry Sound etc.). Contractors operating wayside pits or quarries; pits or quarries on Crown lands, conservation areas, parks etc. should also provide limited site plans with the responsible operator identified on the permit.

The main problem with type of permit would be to pinpoint rehabilitation responsibilities. A warning could be issued on the first suspect infraction and on proof of further infractions the issuing of a permit would be refused and the valid permit cancelled.

Fergus, Ontario

Give private enterprise reasonable rules and they will do the job well and pay taxes to three levels of government as well.

Guelph, Ontario

If not taxed, government each ton should pay a tax. Buy land and lease back.

The publication Pits and Quarries published by the Ontario Mineral Aggregate Working Party April 1976 has approved in my table. It is not exactly clear just who constitutes the Working Party.

The matter of husbanding our more renewable resources – farm land, aggregate, oil, water etc. is going to become an increasingly important aspect of our life in future. In the past we have used them in a most profligate manner.

What is needed is an overall program for the husbanding of our scarce resources – land, oil, aggregate etc. so that we use an absolute minimum of our very limited prime class I, II, and III land and so that our aggregate sites are rehabilitated and made useful. Our record to date has been piecemeal. What we need is one overall plan, made up of 76 interlocking plans bearing in mind not just the next ten years, 20 years, 50 years or 100 years because long after our days Ontario, Canada, North America and the world will still be here.

Guelph, Ontario

All costs are paid by consumer and taxpayers ultimately and these will increase as reserves decline so don't be misled by producers' costs arguments.

Guelph, Ontario

You asked for suggestions on gravel pits. Living beside one I know the problems. We all know gravel is needed but even your committee people would not like one next door. Perhaps some of these ideas may help:

1. Plant a thick screen of trees in front then pile the over burden in a high bank and landscape it. This must be the first thing.
 2. Make the operator start at the very rear of the property. Most pits are good for fifteen to twenty years or more. By the time he gets to the front of the property the trees are doing some good. This would stop visual pollution which is the main complaint.
 3. Noise is next. Having driven heavytrucks I know they need not be operated in a noisy manner. Insist on good mufflers and strict observance of slower speed limits in built-up areas.
 4. No operating at night or on weekends.
 5. Rehabilitate land when it is worked out.
 6. Please, no rezoning of land after people have built homes in the area. If it is a case of having to, property owners should be compensated at least fifty percent for devaluation.
 7. Pit operators should pay for the roads they use. Taxpayers should not pay for their damages.
 8. Make laws for pits and make sure they are strictly enforced by the province.
- Of all these ideas visual pollution is the most important. If we can't see them we tend to forget them.

Guelph, Ontario

Apart from a general professional and citizen interest, we anticipate carrying on pit rehabilitation research on Arboretum property.

Guelph, Ontario

Answering your request for more information regarding pits and quarries I offer some as briefly as possible as by now most of this will be repetitious. The points I list may not be in order of importance but rather as I think of them.

1. The one point we all agree on is that we need sand and gravel and quarry stone to build many of the buildings, streets, houses etc., that we accept and want to enhance our present way of living.
2. You are aware of the spiralling amounts needed to keep pace with provincial growth.
3. Gravel doesn't grow on trees and it can't be planted, so we have to get it from deposits left on our landscape thousands of years ago by melt waters and glacial action caused by the retreat of our last ice age. These deposits didn't decide where they wanted to be but supposedly we can, so it is up to us as an educated and understanding race to place ourselves on this earth so that we occupy the least space and even then preferably on land we can spare so that we can utilize what resources and land we have to the fullest to provide civilization with food and building needs for generations to come. We do not have a licence to waste any resources and it wasn't put here for just us so we have to abandon any selfish thoughts we may have had and get down to the serious business of honestly deciding what is the best way to handle our resources so we waste not and leave what we can for those who follow us.

Appendix 2

4. We have already built on many of our gravel deposits, slowed up drastically the removal of rock or quarry stone and are rendering useless various sources of materials by selfish motives or just plain stupidity.

5. Many factories, buildings for different uses, homes, roads, transmission towers even parks are built on or placed on valuable gravel or stone deposits. For the conservationists or environmentalists these buildings replace trees, the birds and the bees or whatever they chirp about are uprooted, and since they have done so? How come when these are natural resources such as gravel and stone deposits, the gravel and stone wasn't removed first to a level still satisfactory for building sites and we would have accomplished more. Good examples are buildings for manufacturing or whatever built on the escarpment whether it be in Niagara Falls or Hamilton area or the new industrial basin in Cambridge (Galt), Ontario. The latter still in progress covers millions of tons of aggregate with factories etc. on gravel to depths of at least 75' when good planning would have removed the material to various levels rehabilitating each 50 or 100 acres as they are dug out and building on the rehabilitated areas. It may take longer and another industrial area may have to be used in the interim but the gravel land area will be more in demand as it's available and the factories that follow are part of what our growth is all about and demands. The same applies on the escarpment or any other resource. Unless underwater excavation is necessary and sometimes this is so in areas that can use the resulting lake after for recreation which more of us try for more of. Again it's a two way use of land.

6. This all boils down to better planning needed by the province to first use our non-renewable resources and then use the land after for whatever it's best suited for. I'm sure this is the kind of thing the Working Party is trying to solve. 7. Commercial pits – needed urgently near or as close to the urban areas as possible to keep transportation costs minimal require large deposits – many acres – depends on the company and these are increasingly harder to find or assemble.

The operators should belong to the A.P.A.O. and if they do not abide by rules set down by the government there should be a penalty imposed and further the operation suspended. It would be hoped that the A.P.A.O. could help out here because if they are not a member they are not eligible for a permit so could be strict about membership and have far more control over members than at present. (Maybe they could represent members at hearing?)

There should be room for both small and large operators. Hearings for licences should be arranged through a board specifically for this purpose thus eliminating some of the costs now associated with O.M.B. hearings.

You have to realize that rehabilitation of pits is not possible a week after it starts operating, but pits should be kept as free from dust and noise as possible and the open pit area kept to a minimum with rehabilitation taking place as soon as possible.

You are considering compensation of some kind to the townships or municipalities who have large gravel deposits in their area and this should help provide better roads to get materials out and provide taxpayers in that area with benefits to offset the nuisance factors and inconvenience caused by pit operations. This may be hard to implement but would certainly help councils and planning board members in their support of pit operations otherwise they don't need problems it now involves and causes.

Wayside Pits

Very important and necessary and even in areas where commercial sources are close to large construction jobs requiring granular materials it would be more sensible to make use of wayside pits and conserve the material in the commercial pit. Most wayside pits are in and out of in a season, and because of the present rules they are completely rehabilitated thus it makes pit owners and contractors look better and in most cases the end result leaves the land better than originally. Even where land doesn't mean much the wayside pit contributes to the resources needed in the area and can be levelled enough to plant trees and eventually we have another valuable resource.

Wayside pit permits and policing is a problem; M.T.C. do a good job for their jobs under the regional construction eng. but township and county work is the problem. Maybe the supervisor for the M.N.R. for the area could handle it as he has inspectors under him and could get instant input from townships on conditions and see that pit is rehabilitated properly? The other thought is control by counties and it could be a problem but to deal with Toronto seems too much and too slow and too far away to know what really is going on.

In any event we need to utilize every available deposit suitable for a wayside pit when the opportunity arises.

This type of pit in an agricultural area if it grew crop before can be planted after job is done and do as good or better than before if land conditions permit.

This certainly doesn't answer any of your problems and hopefully there is a better way to sort this all out as we need the resources and some common sense to get it working.

Where gravel is scarce then the use of quarry stone is a must and in some cases not much grows on the rock but where there is I'm sure after a layer of rock has been removed from an area it can be returned to its original use.

Municipal input into these decisions is necessary but overall planning and control has to come from Toronto. Your new resource policy undoubtedly will have some flaws and they can be worked at. The main thing is to get something better working with what knowledge we now have.

Surely some of these problems have been experienced in other countries where land is a premium commodity, so you should look at those situations if possible and take the best from there and use it here?

Guelph, Ontario

I hope there is some good reason why I, living in Puslinch Township beside two operating gravel pits did not receive a copy of your publication directly.

My experience with gravel pits and their operators has been a poor one. I have received absolutely no co-operation from these people, no reply to my letters, no straight answers to my telephone calls. A pile of unseeded topsoil that is eroding onto my fields and a fence that is falling down are the results of the Pits & Quarries Control Act, 1971. These do nothing to abate the noise roaring at my home from bulldozers, crushers, large trucks, etc. etc. etc.

A problem which no one has addressed themselves to is that of vandalism on unattended land (gravel pits). Large tracts of land are unoccupied at night and on weekends. These draw many people for sundry purposes. One result is a high rate of vandalism, thefts and unexplained fires in our area.

The fact that aggregate material is useful does not warrant every small construction company owning and operating a gravel pit. Most have neither the funds (they say) nor the inclination (I say) to run them properly that is properly screened and fenced. The solution is to operate one pit at a time in a township. When it is exhausted it should be cleaned up and landscaped and a new pit established.

There is no need to open pits all over the townships and province. The gravel will not go away. It needs to be mined in an orderly and efficient manner.

Technology has made large excavation possible. Technology should now make living beside the excavation not only possible but enjoyable.

Finally property owners have no right to windfall profits at the expense of their neighbours. If excess profits were taxed to pay for protecting neighbours from offensive operations the pressure on Township Councils, Working Committees and provincial governments would subside and order could be restored.

Hespeler, Ontario

I am a worker in a gravel pit and have been for many years and I have become aware of a great waste. Gravel companies, once given permission, excavate and take out all the gravel *that comes easily*!

Generally there is much more gravel to be had, if the companies would only take the trouble to dig deeper, even under water, with more effort. Much good stone is discarded because it is mixed with clay or silt and cannot be used for concrete. This material can be used as road gravel, fill, etc. If more money was wisely used to clean dirty material and to get everything possible out of existing pits, perhaps some prospective sites could remain intact longer.

P.S. Pits and Quarries was a necessary and well done piece of work.

Kitchener Open House Record

Verbal Comments

Erb Road

Too strict and too costly to licence a pit even though pit is well hidden.

Bright, Ontario

Mr. ... has a licence for a commercial pit which he acquired in 1975. He has spent a lot of

Appendix 2

money on rehabilitation (about \$5,000 so far this year) and he has to compete with the wayside pit for municipal road purposes. To obtain a proper return on his investment, he must charge more than the cost from wayside pits. He runs into trouble in selling gravel to municipalities because they are not prepared to pay him the money he must charge to cover his costs: He wants 50¢/yd. and the municipality can get it from wayside pits for 35¢ which puts him in a non-competitive situation. He thinks that this results because wayside pits are not rehabilitated to the same standard. He was not sure about this. A brief will be submitted to Sherry.

Preston-Cambridge

Noise with high speed empty trucks on County Road 25 going south into Dumfries Township. Industry has not had a new reclamation idea in 30 years. Industries standards are totally lacking with respect to self discipline. Land must be restored to agriculture. People are getting excessively impatient with the industry.

Delhi, Ontario

I am concerned about the rehabilitation of abandoned gravel pits. The ones that have gravel remaining in them should get special licences or permits that would facilitate quick extraction. Many social concerns could be solved if time restraints were put on aggregate operations i.e. a reasonable time limit should be put on them. Also progressive rehabilitation should be encouraged.

Kitchener, Ontario

My major concern is with the formal and informal sterilization of resources through uninformed zoning and through adjacent development. I think that the solution should be based on several factors:

- tighter environmental controls to make pits more acceptable
- better information available to planners
- more effective short-term and long-term rehabilitation

Kitchener-Waterloo

Progressive rehabilitation. Should be more concern for aesthetic appearance of rehabilitation projects, not just engineering.

Kitchener, Ontario

Province should allow the continuance of M.A.W.P. as a provincial control body – fewer civil servants – more municipal people (elected) change members from time to time.

Also a member of the Bruce Trail Association. He is anxious for the preservation-protection of the Niagara Escarpment.

Kitchener, Ontario

Ecological and environmental. Disruption of agricultural land. Less tangible aspects of situations.

Waterloo, Ontario

P & Quarries Act slopes all the wrong for ordinary slope. It should be 3 to 1 and for water bodies it should be 4½ to 5 to 1 – use terraces.

Vegetation re part by MNR has mistake – no Kentucky bluegrass but Canadian bluegrass stands up better. Terms geometric wrong and not necessary except for noise prevention – small short trees are no use.

Waterloo, Ontario

Truck traffic from Heidelberg to Kitchener (Steed & Evans) takes route via Schools and Housing – could use alternative and shorter route avoiding above.

Waterloo, Ontario

Progressive Land Rehabilitation and Revegetation of pits and quarries.

Lakeside, Ontario

We as licenced pit operators, think since we have spent considerable money \$2,000 to licence our pits and are willing to abide by the regulations of the acts that applies to us, we should be notified when a wayside permit is applied for and given a chance to help make the decision as to the need (sec. 12-2A) for the wayside pit. We also think every wayside permit should be investigated and not issued just because they have been applied for.

North Dumfries

More policing of pits should be required at the local level preferably elected responsibility. Mr. Forewell S&G....requirements of Pits & Quarries Act. Got a road crossing and asphalt plant without public review.

New Dundee, Ontario

Gravel operation in Wilmot Township – New Dundee complaints about MNR requirements for tree planting. The pit is low with the road higher. No matter how high the berm would be built it could

stop the vision of the pit. If small trees are planted they would never grow high enough. The road that runs in front of the pit has 500 feet of corn, hay before you get to the pit licensed area.

Petersburg, Ontario

Having to conform to the Pits & Quarries Act for cleaning up an old, derelict pit. i.e. 1. installing fence around property before selling what little material was there, 2. the pit was lowered and turned into a productive field. The fence cost approximately \$3,000.00 and the revenue barely covered the costs, 3. in summary – no incentive to clean up a long-standing mess. More discouragement than encouragement.

Thorndale, Ontario

Secretary of recently formed small pit owners association. Why prior to issuing a wayside permit should the nearest local pit operator(s) not have the right to submit a price for crushed material on the contract – suggested that written rejection such offer should be a prior condition to granting of wayside permit.

Willowdale, Ontario

The lack of planning for aggregate resources (with exception of the Regional Municipality of Waterloo) in Ontario.

New Dundee, Wilmot Township

Approach the people in the area. Do not just descend on the area. Better co-operation between the people and the companies. Compensation of people who are adjacent.

No address

The input that you're getting is rather biased and limited i.e. not the average man – wouldn't some form of survey get better public input and a better representation of the "real" public feelings about pits and quarries.

The question of rehabilitation of pre Pits & Quarries Act pits is another problem – I didn't see particularly pointed out suggestions of who or how rehabilitation of these would occur – big question.

Written Comments and Letters

Cambridge, Ontario

Is there not a law in effect that no gravel be mined below the height of the road in the area of the pit? If I am mistaken, then why not bring in this law and strictly enforce it– in doing so, all top soil could be then returned to the site and hide the rape of the land.

Cambridge, Ontario

As a result of your questionnaire in local newspapers, please find filled in to some extent at least the same.

Please let me convey to you that I consider the matter more an exercise in futility than a sincere approach to the problem.

The composition of your working party is heavily aggregate producing oriented or at least favouring and their credibility very much in question.

The question I did ask the Hon. Minister Lawrance in 1971 after a Kitchener meeting "Why do you Mr. Minister make yourself into a mouthpiece of the aggregate producing industry?" still stands only the ministers have changed.

Enclosed please find also a copy of a newspaper clipping which makes for interesting reading and expresses the thoughts of a lot of people. ("Rosenburg alleges payoff in Blair gravel pit licence", Cambridge Daily Report, February 27, 1976.)

Cambridge, Ontario

I endorse recognition of these issues.

Approaches

Any plan put forward will not function smoothly without the whole hearted support of the area residents of the pit. This plan must include and be agreeable to:

1. Owner of the pit
2. Local affected residents
3. Local municipal council
4. Operators of pit

Procedure

1. The above should form a committee.

Appendix 2

2. The owners should draft up a proposed plan in some detail of operation and cost.
3. The above committee should then iron out an agreeable plan.
4. The plan should be then and only then proceed to Regional and then provincial government.

Cambridge, Ontario

Ontario Mineral Aggregate Working Party:

Your list of elements in the mineral aggregate supply problem is fairly extensive; however, I believe these should be added:

- o. the need to prevent further reserve sterilization.
- p. the need to enforce existing regulations and test their validity before the courts.
- q. the need to have sequential site plans of a depleted area receive encouragement from local municipality – albeit a two-way street.

In regards to the possible approaches to this problem, I don't believe the situation has changed to any degree so that the conclusions of the Mineral Resources Committee (1969) in their Report and Supplement are no longer valid. There needs to be a Provincial Mineral Resources Policy with operations regulated at this level. Therefore, I favour approach (d) for it makes use of existing governmental apparatus and systems. Hopefully, approach (e) would follow as a logical outcome. To do nothing, allowing the present criticism to continue will only detract from the good points of the Pits and Quarries Control Act. Or to have the industry and the municipalities do their own self-policing has proved undesirable in the past as have most governmental takeovers.

I am glad to see the actions of the Working Party and the Open House format was interesting. All the success.

Cambridge, Ontario

I am the owner of a commercial licensed gravel pit that has been in use for over fifty years. It is situated ½ a mile south of Cambridge (Galt) on Provincial Highway No. 24. It is situated less than 1,000 feet from Highway No. 24.

To reach Highway 24 the gravel trucks must use a township road for a distance of approximately 1,000 feet.

Residents who live on Provincial Highway No. 24 object to gravel trucks using the highway in front of their homes and have complained to the North Dumfries Township Council.

The Council passed a resolution prohibiting trucks from using the township road to gain access to No. 24. They have no objection to me travelling 3 miles on gravel roads to gain access to No. 24.

The additional cost to travel this extra distance makes the operation prohibitive.

I hope that the committee can see fit to recommend to the Ontario Government that it take over complete control of gravel pits including entrances and exits in order to relieve the industry of local council control.

Petersburg, Ontario

In regard to small pits that have been closed due to Pits & Quarries Act, many small pits could be improved in appearance if they could be worked and cleaned up in the process. However, the cost of present restrictions re permit approximately \$3,000 fencing approximately \$13 per rod, building of burner and tree planting, make it uneconomical to remove unsightly mounts etc. as fill material, which is necessary material to the building trades.

Petersburg, Ontario

Why do people build houses so close to existing pits which were there first?

Petersburg, Ontario

Co-operation among gravel pit owners. Start a pit and all contractors should use the gravel; finish up the pit as soon as possible for rehabilitation. We do not need 3-4 pits within one-mile radius for 25-30 years or even longer.

Kitchener, Ontario

Our children, grandchildren etc. should be allowed to live in a country as pleasing to the eye as it is now, with the same opportunities for recreation as we have now! Allow licence only if sufficient plans are made for rehabilitation of site. Demand deposit, to be refunded on satisfactory rehabilitation.

Waterloo, Ontario

All old run-out pits should be reclaimed at operator's expense, to best suitable use, recreational or other.

Waterloo, Ontario

Let us not forget that we needed aggregate when we built our homes. So we must share as well. Transportation costs are a factor to co-sider, both in wear and tear on more roads and will increase the cost of the finished product. A Provincial Body with a limited number of members, given the authority to perform. Local politics is not to be desired. (example) Cambridge in the Waterloo Region. Pit or Quarry operators to be bonded or fund acquired by way of a levy per ton. This fund to be used to bring a worked out pit back to a presentable condition.

Kitchener-Waterloo, Ontario

Immediate restraint on use of pits unless exhausted areas are restored e.g. #401 Cambellville Sand & Gravel has steadily deteriorated visually for years. There is no evident effort to at least cover the ravages of the terrain. Similarly, the pits in Caledon. One is led to suspect that in time profitability of pit operation gives considerable political clout. Why must public pay both ways – deteriorated landscapes, roads, as well as high cost of gravel.

Waterloo, Ontario

Good Day: This letter will touch on two topics one – Pits & Quarries and two fishing industry in Northern Ontario, where fish are unhealthy for consumption. The latter may be quite emotional and that is why I would appreciate it if the Honourable Lee Bernier or at least Deputy Minister Dr. J. K. Reynolds saw this letter.

1. In Ontario, as I see it, a comprehensive development and growth program is required. Growth is wanted to be controlled in some areas and encouraged in other areas, by government (at all levels) local residents and industry. The problem is to plan, develop and encourage everyone that the rational decision made was in the best interest of *all* concerns and not just industry, which is the way I see it.

I did not realize, until I read your article, "Pits & Quarries April 1976" that the majority of the quarries resources goes into roadway construction, I would be interested in knowing what percentage goes into highway construction vs. residential or local roadways. These lead to our dilemma and the dependence on the auto industry.

Being in the Ministry of Natural Resources it should be well known that the automobile is the second most energy intensive mode of transport, second only to air flight, but the auto is the most widely used of all modes.

Hence an innovative development using mass transit, waste heat from nuclear reactors and innovative housing techniques taking special care to study all human factors should be investigated. We may pay a million times the initial cost of a conventional residential and commercial development but if lower energy requirements and less non-renewable resources consumed it may be worth its weight in gold by the year 2000.

The problem with this sort of solution is that it does not solve the short-term problems and in general government and society only deals with short-term.

2. I am deeply concerned with any levels of industrial waste occurring at unhealthy levels in any form of the environment. Especially when it was the industry who profits and the environment loses.

I do not understand why if there is any question of the source of a problem why legislation is not introduced immediately to stop any likely cause of the problem till it is proven that the problem is solved.

A typical Conservative reply is that the company would go out of business causing unemployment.

My reply is so what! People's lives are at stake and no monetary price can be placed on that! Even if it is shown later that industry was not at fault industry should take social and environmental responsibility. How can one expect people to be rational and responsible individuals when industry is exploitive and irresponsible.

All too often government steps in and causes inefficiency and bureaucracy that alienates people. This not always the case, there exists quite successful crown corporations at all levels of government. The difference is the management I think.

We may be becoming a product of our own negligence.

Considering ALL OUR NATURAL RESOURCES we have a very delicate balance which should make us realize more long-term plans have to be instituted to protect ourselves from ourselves.

Everything from Agriculture to Petroleum are infinitely too valuable to not protect, use, and exploit very judiciously. There is no guarantee that imports can be as cheap as a few well spent dollars now.

Waterloo, Ontario

As a third year Man-Environment student at the University of Waterloo, I (along with 3 other students) have just completed a comprehensive analysis of the aggregate industry in Ontario. Our study

Appendix 2

investigated the life span of a gravel pit progressing from initial site assessment, to initial preparation, to operations, and to rehabilitation. The analysis concentrates primarily on environmental and legal implications of aggregate extraction.

Although our academic investigation is now complete our interest in this issue continues. It is for this reason that I would like to request from you a summary of the findings of the Ontario Mineral Aggregate Working Party. Thank you.

Goodwood Open House Record

Verbal Comments

Ashburn, Ontario

1. Lack of regulations to prevent an overly heavy amount of pits in any given area.
2. The number of trucks on the roads early in the mornings or evenings.
3. Local town councils have little or no voice in the application for permits.
4. Pits allowed to open in areas which are of a recreational nature.

Aurora, Ontario

The value of reclamation not recognized here as it is in England. Operators can actually make money from reclamation. It should be administered through the "planing process" or it may not work.

Bethany, Ontario

1. Revenue to a local municipality a must.
2. Regulations to control impact on local residents should be established at a provincial level.

Bethany, Ontario

Municipalities should obtain additional revenue in form of assessment on: (a) lands held for aggregate production

(b) lands on which production is actually in process (higher assessment than (a))

Brock Rd.

One of the most serious concerns is with the length the pits are allowed to be open i.e. if a limit were put on all pits' licences this would I feel get great support from local residents.

Brock Road

Living in North Pickering and expropriated and then moved into house two years ago on Brock Road South of Coppins Corners – 2 weeks Friday Wayside Pit!

Brooklyn, Ontario

Object greatly to environmental damage. Pit opened across road from home; well dried up. Solution: Enforce existing regulations.

Another operation started nearby. Excessive hours worked. Roads not oiled. Solution: Should be well planned and executed rapidly and cleaned up.

Claremont, Ontario

My concern is that the municipal by-laws and the Pits & Quarries Act with respect to aggregate mining are nowhere near in agreement with each other. I would like to see a more compatible agreement between the two.

Claremont, Ontario

Truck traffic on the road – speed and overloaded trucks; no noise control. Want study made to train transportation of gravel from northern Ontario – I know it is not as expensive as government wants us to believe. Rape of land with no thought of future use and long-range recovery for recreation or residential purposes.

Breaking up a community with huge, ugly pits – would like to see fewer larger pits with a time limit and guarantee of restoration of beauty of land.

Claremont, Ontario

Protection of environment.

Claremont, Ontario

Disregard of existing rights and by-laws of municipalities and rights of individual property owners! The way old pits are left behind as an eyesore, and often as a danger area! Devaluation of adjoining properties, without compensation!

Claremont, Ontario

The whole mess! Essential to limit urban growth in view of diminishing resources, social health. See Human Settlements by Barbara Ward.

Claremont, Ontario

My concerns are as follows: 1. the lack of rehabilitation of pits, 2. no guidelines for pit rehabilitation, 3. no screening standards and in fact in many cases no screening, 4. no notification of intentions regarding establishments or expansion of pits to local residents, 5. confusion of by-laws and control act, 6. lack of enforcement of regulation.

Claremont, Ontario

Citizens' groups should be asked to police problems with pits and quarries.
Citizens could serve notice on trucks exceeding the speed limit.

Claremont, Ontario

Airport expropriate area – they rebought land in Uxbridge, Con VI, Lot 15 and now all the uncertainty re gravel. They are outside the gravel area but? Abandoned pits should be rehabilitated. Truck traffic.

Claremont, Ontario

Pits no time limit. Can be reopened anytime – too close to property line. Rigidly enforce legislation.

Claremont, Ontario

My main concern is that gravel pits should be licenced for a limited acreage and that the said mining be completed within five years. Thereafter, rehabilitation should be completed within two years. We also have a situation where one company can operate more than one pit in the same general area. I believe that gravel should be mined and stockpiled (if not immediately saleable) to insure fast and efficient operation and subsequent rehabilitation. This could be better done if operators were forced to operate only one pit at a time. I see no need to rehabilitate used pits for another use. Why not just create gentle slopes plant grass and trees and allow it to lie fallow. I realize it would probably be of no more financial use to a pit operator but after he's already reaped his profits from the land. It is absolutely essential that we somehow be assured that our environment be restored within a reasonable period of time.

No address

Progressive rehabilitation should be delayed in special cases involving blending or in cases where there is potential future use of material at a greater depth.

Coppins Corners

Unnecessary bulldozing trees; filling of swamps should be prohibitive; concerned re amount of operations around residence.

Coppins Corners

Traffic. Pits operating at night or weekends.

Coppins Corners

- farm land zoned for gravel.
- dangerous entrance to Brock Road.
- zoning changed so easily.

Don Mills, Ontario

Disregard of Highway Traffic Act by dump trucks.

Goodwood, Ontario

General rural environment; unused quarries not properly rehabilitated. Traffic of heavy trucks wearing down roads without adequate compensation to townships.

Goodwood, Ontario

Mostly concerned with regulatory problems. Feels they can take out as much aggregate as they want as long as they rehabilitate. (See printed submission)

Goodwood, Ontario

Mine in North and trail haul. Local roads overwhelmed by big trucks. Reverse current % – 90% by rail and 10% by road. Water table dropping as pits opened.

Goodwood, Ontario

Recognizes the need for gravel, and is concerned primarily about environmental effects – noise, dust, stones, flying, empty tailgate noise. Pit across the road was bermed and berm cuts down on noise. Regan is a good example of berming.

Appendix 2

Goodwood, Ontario

Mine one pit at a time, exhaust it before opening new one. Dust a big problem. Drop in land value very big problem. Mine one area very quickly and move out and clean up. Then land value would be down for only short period of time.

Goodwood, Ontario

1. Make every operation clean up their frontage and possibly plant trees etc.
2. On all gravel roads and approaches to pits, in operation, either the township should pave the roads or gravel companies. In any respect the quarry operator-owner should bear the greater part of the expense.
3. Allow no truck operation, approaching any pit off the Queen's Highway after 6.30 p.m. and before 6.30 a.m.

Goodwood, Ontario

Lack of clear cut control and enforcement – overlapping jurisdiction – progressive rehabilitation.

Goodwood, Ontario

Property rights major concern. Mine gravel under his property through expropriation. Fences poor and lacking in some cases.

Goodwood, Ontario

Condition of roads terrible and sites along the roads. Concerned about gravel designation in the OP & ZBL and what protection you would have if gravel pit opened.

Goodwood, Ontario

Traffic – trucks should be tarped – headlights and windshield broken and it is costly. Live right in Goodwood. Backyard in pit and me across the street. Trucks start even at 5.30 a.m. Hard to compete with gravel trucks – speeding trucks.

Goodwood, Ontario

Con III, Lot 27 – where are you going from here. Land is zoned for gravel but agriculture – if they find gravel there will it be dug? Producers go in and stop and the whole pit should be extracted and then rehabilitated. Time limit for operation – it drags out for many years. The 2¢ per ton levy is not enough.

Goodwood, Ontario

Control by township government, policing, we have to have gravel, inspection should be by township employees – could be volunteers, depth 2 wells, safety and trucks should be at day rate.

Goodwood, Ontario

Water table, progressive rehabilitation, screening, safety hazards, value of real estate, compensation to township.

Goodwood, Ontario

Beautify existing and abandoned pits. DUST and ROAD CONDITION, WATER LEVEL. Policing of trucks – weight – tarpaulin. Feels threatened by operations affecting his home! 15 acres.

Janetville, Ontario

1. Operational controls should be provincial not municipal but there should be a “board” to which appeal can be made to vary controls under exceptional site considerations. (a)OMB would be suitable “board” only if decisions can be expedited beyond current handling.

Janetville, Ontario

Haul routes should be established provincially between major supply areas and major markets, preferable off the right of way of existing roads and the cost of constructing such routes should be derived from the price of extracted tonnage.

Pickering, Ontario

In presenting my brief by Provincial Aggregate Haulers Association of Ontario – brief approximately May/75. One thing that didn't come out of it was rate control. Rate Control: prefer the M.T.C. rate as minimum base on supply contracts. Would guarantee a living wage. 90% turnover in industry. Estimates average difference between M.T.C. minimum and current contracts at 20% (1975). Highland Creek pays more. Paving pit access.

Richmond Hill, Ontario

Thesis on “Aggregate Potential of Rehabilitated Land” – reports on successful experience with TCG sites near Brantford and Aberfoyle.

Stouffville, Ontario

Primarily concerned with pit expansion to the extent of expropriation due to gravel deposits on my acreage. Road condition at present time leaves a great deal to be desired due to excessive gravel truck traffic. Control exercised would definitely be better to have local authorities apply control on decision.

Stouffville, Ontario

We live at Lot 20, Conc. I of Uxbridge Township (Durham Region) and we are presently bordered by Consolidated Sand and Gravel on the north, south and east. Our situation is pleasant so far as the gravel pits close to us do not function near us YET. However, Consolidated could start work since they own the land near us. Our fears are: 1. that we could be expropriated, 2. that force could be put on our neighbours to sell and then on us, 3. that control solely in government hands might create a situation where we would have no voice but where someone else in authority might say "Move" in a manner reminiscent of Pickering airport all over again.

We realize that with gravel shortage some planning will be necessary to make the gravel resources last, but we think that people in Durham or Ratepayers' Association should be involved in those decisions. Hopefully the localities involved i.e. Durham, Caledon, Kitchener, etc. could keep the brunt from falling hard on one locality and its residents.

Stouffville, Ontario

Goodwood School – truck traffic dangerous. Dust from roads a concern. Lack of controls and control should be on a municipal level. Uxbridge a unique area so we need a closer control. Province not looking after local interests. Once a pit (wayside) is established it can be reopened. Scars and landscape – rehabilitate for garbage dump should not be allowed. Rehabilitate to agriculture.

Stouffville, Ontario

Unightly pits, traffic, no proper control over pit operations. Revision of Pits and Quarries Act.

Toronto, Ontario

Small tonnage restriction on licence prevents economic operation and may cause bankruptcy.

Uxbridge, Ontario

Wayside pit and lack of control by local municipalities.

Uxbridge, Ontario

I feel that a rehabilitation plan should be thought out and thoroughly planned before extraction is permitted. Provincial and municipal plans for the ultimate use of the land the characteristics of the site considered when making the rehabilitation plan – which should be carried out progressively? The need for aggregate does not allow its extraction to be withheld, except in a few cases, but extraction should be controlled so as to minimize the nuisance during workings and return land quickly to final use as per plan. Operators refusing to accept responsibility for theirs should be severely penalized and not allowed further operations. I also feel tandem trucks should not be allowed on roads. They are much too great a safety hazard.

Uxbridge, Ontario

1. All the Open Sores on our landscape. After removal of a certain number of tons could the owner not have to show that he has begun rehabilitation of the pit before further mining be permitted?

Uxbridge, Ontario

Need to consider resources as a public good. Person should not be permitted to profit from windfalls when no real input by operator.

Operators must take responsibility to rehabilitate pits using feasible methods already demonstrated. Trailer trucks on road near hall are too large for the narrow local road and driving at high speed.

Uxbridge, Ontario

All of the many already listed concerns as well – too many fingers in the legislative control pie. There should be a provincially appointed board made up of local persons. Truck driver courtesy and training and safety education program. A complaint or referral board to call about pits and trucks. A removal to stock piles and immediate rehabilitation of pits in prime areas. A group of trained and concerned persons formed to find new ways to rehabilitate pits. Some form of levy to the involved municipalities.

I feel that sand and gravel are a necessary resource that must be mined or quarried. But strong and positive action must be taken to control and direct it in the best direction. The working group now formed is the first step in that direction. Keep up the good work. As an after thought, is any work being done to protect and replace this resource and prevent the situation that is now affecting the petroleum industry.

Appendix 2

Uxbridge, Ontario

Revenue redistribution, in form of royalty paid by extractors to local areas who have the problems of traffic safety, noise and general inconvenience. Rehabilitation of property to either original condition or at least to a form that may be utilized. Road conditions in vicinity of extraction areas. Could not some of the movement be by rail?

Uxbridge, Ontario

Why open new pits when so many open already. Could it be railed out? Mun. should be compensated.

Uxbridge, Ontario

Keep control at township level. Explore substitutes. Can do without exploitation from outside. Industry should pay.

Uxbridge, Ontario

He is against taking away a persons' freedom. He has 60 acres, all on gravel. He does not want to sell and has no objection to others using the land as they see fit adjacent to him as long as it doesn't encroach on his freedom. Agrees that gravel must be taken out. Would like to see gravel taken out over a short time to reduce nuisance. Better remuneration and distribution of the money to the people affected. Has had problem with subdivision – stream flooding etc. Lot 23, 24, 25 (2nd line) ex pit now subdivision homes 150,000 min. Will write if have time.

Uxbridge, Ontario

Operating and rehabilitation control should be uniform throughout the province.

Uxbridge, Ontario

Live next to gravel pit, Con V, Lot 29. Bog pond at the back of the house and am sure the gravel extraction will affect this. 100-acre farm – she lives on – all trees – much like a conservation area. Truck traffic-noise-new licence. Write and tell her the name of the pit operator. Water pollution and effects on the water table.

Uxbridge, Ontario

Truck traffic – speed limit. Ugly gravel pits should be like REMAC. Abandoned pits unsafe.

Uxbridge, Ontario

Thinks trucks major problem but that industry could police!

Uxbridge, Ontario

Aggregate mining appears to be out of control in Uxbridge Township. Too much aggregate is being mined – it is incredible that mined out sites are not required to be rehabilitated. Roads are not adequate for the weight and number of trucks. Why are trucks permitted on roads without canvas covers over aggregate? (I've lost two windshields). Why not use railroads more – even piggy back for aggregate movement? Gravel could be brought thus from more sparsely settled areas.

West Hill, Ontario

Granular material must be available. Any act brought in should not be to the detriment of the economy. Stricter control would be in order.

Willowdale, Ontario

Uncertainty of future conditions, solutions i.e. airport or not; development or not etc.

No address

Concerned about high berms blocking view.

No address

talked with Armstrong. Either you are a member or goodbye.

Question: Are testifying experts at O.M.B. members (or associate members) of Aggregate Producers Association?

No address

Represents aggregate producers and municipalities – impressed with presentation.

No address

Why act not enforced?

No address

Where do costs come from? Price should be at pit plus haulage.

No address

Interested in getting pit permission. What about rehabilitation?

Written Comments and Letters

Claremont, Ontario

Acreage excavated should have a direct relationship to acreage being reclaimed. The laws should be carefully administered. More responsible provincial/municipal officials with a clear understanding of the issues. Stricter laws that would be enforced regarding gravel pit operators. Gravel pit operators and truckers have been blatantly disregarding their responsibility to nature and residents.

Claremont, Ontario

I am very interested and concerned about the Pits and Quarries being developed and many of them being left in the condition of the operations being terminated.

The best situation I have read about (I believe in the Readers Digest) was the one in Germany. The government act calls for all owners of land to be used for mining, quarrying etc. to deposit a certain percentage of the value of the land in a trust bank and a certain percentage of profit also after the operation commences. On completion of the operation the owner then puts forward a proposal for reinstatement to the local authorities for approval and the money deposited is used to reinstate the land to the specific requirements.

Claremont now comes under the County of Durham Region and Pickering Township. My occupation is in Engineering Design of steel mills, involving control of water services affecting the environment in so many ways, we are recycling and treating to ensure the proper conditions are maintained. I shall be interested in any information concerning developments. I repeat I cannot get to the Tuesday meeting for this area.

Stouffville, Ontario

Licences should be based on a land management plan, provided by the licensee, in keeping with the ultimate land use. The licensee would be responsible for leaving the area in satisfactory condition – (terracing, drainage etc.) upon completion of operations.

Uxbridge, Ontario

To minimize the environmental impact and nuisance to residents we propose the following measures:

1. an immediate moratorium on the granting of extraction permits in settled areas.
2. a thorough geological mapping program followed by a drill program to prove sufficient aggregate reserves for the next 40 years.
3. purchase by the province at open market price of sufficiently large tracts of land containing proven aggregates which would allow the creation of wide buffer zones to minimize the negative impact of mineral extraction on neighbouring properties.
4. mining to be concentrated in as small an area as is feasible economically to assure the rapid rehabilitation of exhausted lands.
5. rehabilitated land to be sold in sufficient quantities to recover the original purchase price and carrying costs while the remainder should be retained by the Crown as forest reserve and recreation lands.

Sudbury Open House Record

Verbal Comments

Garson, Ontario

Concerned different ways as to dust control. I believe the work can be carried on if those implicated become conscience minded. There are many uses for the good things on earth. More effort needs to be used to see that it is used for good purpose. It is sad not to see more interested citizens. One group cannot do it all – probably more get together will help.

Garson, Ontario

lives near Inco owned sand pit
problem with sand blowing
no berm or trees between house and sand operation
material very fine – blows off railway cars

Appendix 2

need to seed area not being used

each year continue operation to one area and then seed it

Sudbury, Ontario

pits – blow sand – Inco Pits – trucks – tarping – new pits.

Sudbury, Ontario

– interested in information that is available from the Ministry for teaching purposes. Trying to set up a course on environmental studies. I will mail them copies of vegetation report and Towards the Year 2,000.

– feels we should advertise the mineral aggregate supply difficulties in the papers similar to Energy Crisis information – to make the public aware of the real coming shortages.

Sudbury, Ontario

– interested in geological reports in the Sudbury area – especially pleads for information. Write to him and send material and information re Burwasser report. What are the concerns of the people? Who really objects to an open gravel face if it is not being used? Sudbury area dominated by INCO.

Written Comments and Letters

Garson, Ontario

Please excuse my tardiness in replying to the importance of the future plans regarding sand pits, as our family has just come through a bereavement.

My personal fight to have dust abatement treatment attended to started some 10 years ago. We purchased a home edging on an Inco sand pit, of which we had no knowledge. As our home became our largest lifetime purchase, so did the size of the sand pit.

This meant clean washes hung up only to be brought back in a few hours later pitted with sand. Our table could have been a playground area for dinky toys. Our beds felt like someone had put salt in them. Closets, closets and medicine cabinets soon had a fine film of dusty sand. One doesn't paint on a windy day as the job is ruined – not to mention the sand in our eyes as we do so. If it is 80 degrees we do not barbeque as the sand fills our eyes so that we can't cook the sand-coated meat patties. The first rule in this area before going out for groceries or dentist appointments is to close all windows regardless of temperatures as a sudden wind means the vacuum cleaner comes out as soon as you get back. Some smart people never take their storm windows off, but I like the summer air (minus the sand).

May I go on? You ask why don't I move? I have a large lot, a home I've grown to love, and almost have paid off. Why should I? Can't Inco be made to be more responsible. Last year was the first move on their part to sow oats on barren stretches and this year they've planted trees along the rim of the pit. I thank them for that. Perhaps my problem will soon be ended if nature does it's job with the oats and trees.

However, I feel this should have never gone on so neglected for so long. Perhaps your committee will make our government produce a more responsible attitude in dealing with quarry owners. Better planning in regards to prevailing winds, size of working areas, proximity of town sites, and quieter machinery in such areas. Timber, water, sand and rock are some of our necessary resources which must be processed – but the methods must be more humane for the citizens. A cranky mother with a buzzing vacuum cannot be very patient with a youngster wanting in on a day when it's 90 degrees and he's holding a sand covered popsicle.

I recommend tying a few of these pit owners to a tree in the middle of the pit on a windy day to taste a bit of their own medicine; that raises my blood pressure, rattles my nerves, and makes me curse.

Well, I must go and check the wind direction to see if it's safe to sit in the backyard on my swing and have a cup of coffee before I vacuum after yesterday's sandstorm. May God have mercy on the "Sand Pit Owners" and forgiveness for the cursing, vacuuming homemaker (and God bless you for listening to me, Miss Yundt). Please help.

P.S. I feel the poor turnout to the Pits and Quarries Group meeting was due to many feeling nothing would come of it and others didn't hear of it being held. I hope this won't have a bearing on the outcome as the problem is here and from the maps I was shown, will get bigger. Those who have not lived with this cannot see how it will affect them until the "Pits" come home to roost in their backyards.

Garson, Ontario

My biggest problem and main concern other than the sand blowing around, is the section of land behind my property.

Someone took about one half of a hill away to fill in some other area or areas of Garson. What that has left is an eyesore. A big hill with the centre taken away with the banks on an 80-85 degree slope. The spring run-off every year plus any heavy rainfall is constantly cutting the banks back farther and farther as there was no grass or anything of the sort to counteract this erosion.

In another year or so my backyard will start eroding away. I strongly feel that this section of land should be seeded and partially filled along the banks to create a much less gradual slope to help slow the erosion. Shouldn't the person or persons who took this land away be held responsible?

The section of land is at the Office of Land Titles in Sudbury. I am Lot 14, Plan M-960, part of Parcel 39316, Sudbury East Section. The section of land I am concerned about is all of Parcel 15688 and the northern part of Parcel 7976.

Hoping to hear from you in the near future. Thank you for your interest.

Greely, Ontario

Safety hazards could inciude blocks F.G. and H. The dust from trucks and operations both on the road and both dangerous in health and to the individual person operating their car or walking along. Also do you have any idea the heavy film this dust leaves on our gardens and fruit trees and lawns, to say nothing of our lungs. During a lengthy dry spell occurs it surely slows up our production for our winter supply oof fruits and vegetables. In this world where food is so important and its scarcity increasing constantly, would covering the trucks be one step in the right direction? The honking of horns is a real play toy for some of them. Our property has diminished in value. Why aren't those berms seeded properly to a height which would conceal trucks weighing and some of the language you listen to sometimes isn't very palatable especially where we are facing them directly. Could those areas be given a little more consideration?

Sudbury, Ontario

My father owns and operates a small gravel pit near Long Lake, Sudbury Region.

Unlike most, this gravel pit is not a hole in the ground but an excavation into the side of a very large hill. Only a portion of the pit property ought to require fencing for safety reasons as there is a natural steep rock hill on one side. This pit has produced an ideal location for housing some day where once was only hillside.

However, there does not seem to be room for exceptions to the laws made for southern Ontario quarries which fill with water and are dangerous eyesores.

While I'm sure the Sudbury inspector is kindly sympathetic, his hands are tied; my father must abide by legislation that should not apply to his type of pit.

His operation has always been small, the cost to the buyer always a little lower. Mother is book-keeper and telephone sitter; my parents make only a decent living.

This is a business the entire family has worked, budgeted and sacrificed for. This is a business that was well in progress before the surrounding homes and subdivisions were constructed.

With the recent problems and high costs of obtaining insurance for his trucks after over 25 years of record-free driving and of attaining a licence and abiding by the new time and money draining legislation imposed by the Ministry of Natural Resources, the government has almost succeeded in beating a good, honest and terribly hard-working man.

In whatever approach used for pit and quarry control, the policy must be flexible enough to deem reasonable legislation for individual cases.

Thank you for the opportunity to voice my opinion.

Ottawa Open House Record

Verbal Comments

Edwards, Ontario

– lack of teeth in legislation

loss of property rights

noise and vibration from traffic and blasting

lack of adequate blasting controls

Greely, Ontario

Rehabilitation of existing pits and quarries.

Appendix 2

How are operators existing for many years to be forced to rehabilitate.

What alternatives have been considered to sand and gravel for the construction of homes, roads etc.

Greely, Ontario

S½ Lot 2, Concession 5, Osgoode Township – owns property and wanted a severance for daughter – mineral extraction area in OP for Ottawa-Carleton 60 acres works for Spratt Sand & Gravel – he was turned down flat for severance. He doesn't want it sold just want to be there. Some material taken out for a wayside pit. Spratt would like to open it but no one could do anything.

Greely, Ontario

– against the double process of central by municipality and province – sells topsoil – waited three years to get a gravel license. Osgoode Township operators regulations should be by the provincial level. He knows topsoil removal will eventually be licensed and controlled. He is against topsoil removal on good land but everyone has to make a living. Ideas for operation will really force the aggregate price up.

Kars, Ontario

We are concerned but before Highway 416 is done. Your new regulations will not be in effect and all gravel will go out under wayside pits because it will reduce costs and leave us with resultant chaos.

Kars, Ontario

– complaint with Campbell operation
came up to three feet of property line
recently cliff was sloped but it is still within three feet
problem with dust blowing from pit into back lawn – no watering down is being done

Kars, Ontario

I would like to see the government be more frugal and thinking of the resources now available. It seems unreal to talk of lack of aggregate and sand in future while continuing to waste and use it at present.

It could make the “no's” more palatable if one thought priorities were more in forefront of government.

L'Orignal, Ontario

– if property zoned there should be no reason why you're not given a license
person complaining against license application should be required to prove grounds of complaints
cost of licensing too high
want provincial regulatory body – perhaps with employees within region
hearing process takes too long

Manotick, Ontario

As a landscape architect, would like to see clear definition of extraction zones so that these areas can be protected for future use and would allow establishment of complimentary and short-term land uses to use the lands in the interim, and prevent, at the owner's risk, establishment of incompatible uses.

Manotick, Ontario

– use of prime agricultural land that is irreplaceable
concerned that provincial government exercise strict and real control and make real effort to develop fair recompense policy for landowners who might otherwise sell their land for pit development

Manotick, Ontario

Authority for control of all pits should be in one department apart from carry municipal body.

Nepean Township

Future supplies of aggregates.

Ottawa, Ontario

Very happy that the Eastern Ontario report by P & R has been published. He feels he should have emphasized in his forward to the P & R Central Ontario Report underground mining – tunnelling. Very pleased he came to the Open House as he found out a lot and had some interesting conversation. Admits he reviewed the P & R Central Ontario Report from purely a geological and economic point of view.

Ottawa, Ontario

The primary control of pits and quarries should remain within the provincial government – it is impossible for operators to function effectively when they are required to deal with each and every township. It is difficult to understand why townships cannot achieve their objectives within an effective set of provincial laws.

Laws passed regarding pits and quarries should not be prohibitory. Extraction from underwater for example should not be made prohibitory for existing approved operations, which have been approved on the basis of a plan which reflects underwater extraction.

Ottawa, Ontario.

What about topsoil control? I am particularly concerned that there is no way to control the removal of topsoil from good farm land and leaving the area barren for many years.

Ottawa, Ontario

- the involvement of too many governmental departments re pits and quarries.
- could not the Department of Natural Resources work directly with the owners of pits and quarries zoned property under the guidelines of pits and quarry act and in conjunction with zoning agreements in agreement with the Township Zoning Plans?

Ottawa, Ontario

- what about transporting material by conveyor belt from supply to demand?
- what about substituting wood and other products for foundations?

Ottawa, Ontario

- lack of sequential land use planning
- use of high quality aggregate for low quality applications – quality inventory required!
- low unit price has encouraged wasteful use
- lack of accurate consumption data
- perhaps too many levels of government involved – can it be all provincial I doubt it.

Ottawa, Ontario

Too long an interval between applying for license and decisions – too costly due to unnecessary objections if properly zoned why should other local municipal officials get involved. Provincial government should have the final say.

Ottawa, Ontario

- want provincial control
- too many and official bodies involved
- Present legislation discriminates against small operators
- abandoned pits – won't let developers or other interested persons do anything with them
- need incentive to rehabilitate abandoned pits

Ottawa, Ontario

- represents Fallowfield Citizens Association
- concerned about blasting – operation blasts two times/day
- want stricter controls on blasting near MacFarland Quarry
- some residents have suffered damage from vibration
- considerable air pollution from blast

Ottawa, Ontario

- Environmental impact of pit and quarry operations on adjacent lands.
- Development of information to enable prediction of environmental impact. Particularly with reference to noise from blasting, drilling, crushing and local vehicle traffic.

Ottawa, Ontario

Time involved to obtain license when area is already designated for mineral extraction.
Put control of licensing and rehabilitation solely in the hands of the Ministry – townships becoming far too involved to deal with.
Owners of pits o.k. quarries already depleted should be made to rehabilitate these properties.
The Ministry should put one competent person in control of licensing and rehabilitation and let him be responsible for important decisions.

Ottawa, Ontario

Control over blasting charges – destruction of trees and property devaluation of private homes.

Ottawa, Ontario

- blasting
- devaluation of homes and property
- dust ruining our trees, shrubs, and wildlife.

Ottawa, Ontario

– the slow process involved in obtaining our permits in Osgoode Township and now in Gloucester Township.

Appendix 2

– there should be a better way of communicating with the Ministry for a permit and after one year after application has been filed a hearing could be requested by operator to the Ministry.

Ottawa, Ontario

– high yield blasting by McFarlane Quarry in the Fallowfield area.

control of future quarry operations in the Fallowfield area.

damage to the environment in the Fallowfield area.

responsibility for the rehabilitation of pits and quarries.

Richmond, Ontario

Was turned down severance for daughter because the land is extractive from region. Huntley or west Carleton Lot 1 Con II. Huntley o.k.ed it but region turned it down. Appealing case to the OMB.

Nepean in Con. V lot 17-16 know there is gravel there OP for OC shows it as extraction (mineral reserve) which is covered but local OP says conservation. They want it as extraction because it is the truth.

Richmond, Ontario

– land gravel should be allowed to be mined if economic with no loss to owner or operator. Let public compensate if they wish to stop – hold up on present operations. “Put their money where their mouths are”. All pits should be landscaped to keep from public eyesore etc.

Stittsville, Ontario

7 member hearing board. Board to sit in each area on regularly described dates. Applicant indicates to the Board and the Municipality (regional and local) that they will be making application to the Board for hearing. Mandatory that municipality make a submission. Applicant must give 90 days notice of his “intention”.

Appeal Process – 30 days – higher authority.

Waterson Corners, Ontario

– pit behind is three feet from back lot line.

–would like pit filled in to 50' from property.

No address

provincial/municipal co-operation

provincial control and licencing

immediately – identification of resources on O.P. documents

quarry blasting – load – control on limit and size of each blast

(Dupont) – educational film and program which they present to municipality – free – presented by an expert from company.

No address

compensation to municipalities

topsoil management/control

No address

Definition of “Pit”:

a) to include topsoil

or

b) to include any disruption of land surface with exceptions for other than mining operations “topsoil removal is Mining”.

Written Comments and Letters

Metcalf, Ontario

1. Compensation to the municipalities

If a municipality is expected to reserve large areas of land for the future benefit of a surrounding region, there should be some compensation (particularly for a rural municipality) for the loss of tax revenue which would have been gained from country estate housing or from even limited industrial development of another type; also to compensate for the daily physical damage to local roads and the high nuisance value to residents over a wide surrounding area. Mr. Young suggested several ways this might be done; I favour strongly a change in the method of assessment so that operating pits and quarries would pay municipal taxes in the same proportion as any other business of comparable value. (agreements between pits sharing the same road to contribute to its maintenance would be inoperable, in my opinion).

2. Changes to the Pits and Quarries regulations

a. seeded berms should be a mandatory preliminary requirement – with optional trees

(A suggestion by one of the working party that a sloping field of corn might be a substitute is not acceptable as it would only be a screen for a short period of the year and anyway probably would not grow in such conditions).

b. Blasting in quarries should be at fixed times twice a day. The aggregate producers I have spoken to agree that 12 noon (psychologically a good time) and 4.00 p.m. are acceptable. A totally isolated quarry might be permitted to negotiate special terms. Blasting should be under greater control by the Pits and Quarries inspector.

c. mandatory progressive rehabilitation

d. special reference should be made to protection of existing adjacent residences (better screening, setbacks etc.) – not as at present only to existing residential zones.

3. Topsoil legislation should somehow prevent stripping of land prior to license application, thus devaluing it to add weight to the application for pit license and ruining it if the license is refused.

Puslinch, Ontario

Possible approaches

1. to gain public support for the opening of gravel pits

a) the government should ensure the clean-up of present operations and also attempt to clean up pits which have been opened and since abandoned.

b) force the gravel company who has completed operations to clean up abandoned pits to the satisfaction of the local municipal governments in co-operation of the neighbouring landowners.

c) haul roads from present gravel companies – pit operations should be maintained by the gravel company. Present gravel roads (rural roads) in most municipalities cannot cope with the 30 ton loads which are hauled. The speed limit should also be restricted to 30 miles per hour.

d) hours of operation should be 7.30 a.m. – 6.00 p.m. 5 days per week.

2. that a survey of gravel pits presently operating be taken to see if they can supply the demand for gravel for one to ten years.

3. a survey of gravel areas, pinpointing which areas should be zoned gravel.

4. the areas to be zoned – be discussed with the local municipality and the people concerned 2,000 ft. in the area of the pit to be opened.

5. a gravel company wishing to open a pit in the municipality discuss the matter with the local officials first before approaching the landowner.

My own opinion:

1. gravel companies have not endeared themselves to either the municipality or the local people.

2. they have taken gravel from the ground at high profits and returned none of the profits to the land for rehabilitation.

3. they haul their loads in 30-ton trucks at high rates of speed breaking up township roads and creating dangerous situations for local car traffic.

4. the government (provincial) does not control the gravel operations under the Pits and Quarries Act. They, the gravel companies operate as they wish with no regard to the local municipality or the local residents. They agree to do one thing and then ignore what they have agreed to.

5. To myself the Ontario government and the gravel companies are going to have to convince by doing the clean up of present operations and working details out with local municipalities and the citizens concerned in the area of the pits.

Thorold, Ontario

I understand from an article in the local paper that your committee is preparing suggestions for government policy re mineral aggregate. My enquiry may be premature since whatever policy changes may occur have not yet been decided on by the government.

I wonder however if you can give any advice on this situation: a 40 acre portion of cement quality gravel about 25 ft. depth, which is within a quarter mile of a recently expanded city boundary. There are houses on portions of the adjacent 100 acre farm which is next to the city boundary. Gravel is still being removed from another portion of that farm. There is a strong possibility of an industrial area being developed on the city land nearby. The 40 acre area is part of a 100 acre farm (zoned agricultural) which is still being farmed but in view of the housing, possible location of industry and also possible residential subdivision on another side, it may not be feasible to continue farming indefinitely.

Would you or other members suspect problems in obtaining a licence for removal of the gravel in the next few years? Are there any steps that should be taken now to make more certain the the gravel can be removed sometime in the future before rehabilitating the property for the probable future industrial or residential use?

APPENDIX 2F

CONTENT ANALYSIS OF WRITTEN RESPONSES* RECEIVED BY THE ONTARIO MINERAL AGGREGATE WORKING PARTY

MAJOR THEMES	CALEDON	GUELPH	KITCHENER	UXBRIDGE	SUDBURY	OTTAWA	OTHER	TOTAL
TRANSPORTATION								
Truck traffic	15	9	3	40	1	4	—	72
Uncovered loads - broken windshields	7	—	—	11	—	1	—	19
Dust	4	1	—	10	1	2	—	18
Maintenance of roads - operators should pay	6	3	2	18	—	1	—	30
Transport material by rail	10	2	—	8	—	—	—	20
TOTAL	42	15	5	87	2	8	—	159
OPERATION OF PITS								
Noise of operation	7	9	—	16	—	8	—	40
Dust from operation	1	2	—	6	5	3	—	17
Blasting	—	1	—	—	—	7	—	8
Enforce standards - stricter controls	4	6	5	11	1	3	—	30
Aesthetics - messy appearance	8	4	2	13	—	2	1	30
Influence on water table	7	—	—	12	—	1	—	20
Screening of operations insufficient	5	1	2	1	1	3	—	13
Issue license for limited time only	1	1	—	10	—	—	—	12
Greater compensation to municipality	4	5	—	14	—	2	—	25
Extract material from road allowance	2	—	—	—	—	—	—	2
Topsoil removal	—	1	—	1	—	5	—	7
Make licensing procedure less cumbersome and costly	1	2	—	2	2	7	—	14
TOTAL	40	32	9	86	9	41	1	218
FUTURE USE								
Reclaim pits abandoned prior to Pits and Quarries Act	3	2	1	4	—	1	2	13
Use abandoned pits for landfill site	—	2	—	—	—	—	—	2
Rehabilitation important	11	6	8	25	—	4	1	55
Progressive rehabilitation	6	5	6	10	1	2	1	31
TOTAL	20	15	15	39	1	7	4	101
REGARDING LOCATION OF PIT								
Loss in property values	8	3	1	11	—	3	—	26
Environmental concerns	11	1	4	9	—	3	2	30
Consider agricultural potential	7	3	3	6	—	2	—	21
Consider social costs - impact on residents	5	1	3	4	—	—	—	13
Avoid pits near populated areas	1	1	—	3	1	—	—	6
Greater consideration of other land uses	4	1	2	—	—	2	—	9

Province should decentralize growth	4	1	—	—	—	—	—	5
Provincial land-use policy needed - plan ahead	7	3	3	1	—	1	1	16
Exhaust old pits in an area before licensing new pits	9	1	—	7	—	—	—	17
Have limited number of large pits in an area instead of many small	5	5	2	7	—	—	—	19
Residents should be made aware of facts before moving in	4	1	—	1	—	—	—	6
TOTAL	65	21	18	49	1	11	3	168

MAJOR AREA OF RESPONSIBILITY & AUTHORITY

Maintain local control (through official plan and zoning)	10	2	3	16	1	—	1	33
Involve local council	4	1	1	2	—	—	—	8
Involve public more	3	1	—	3	—	—	—	7
Too much public and local intervention	—	—	—	—	—	—	3	3
Primary control should rest with province - local areas have less control	2	3	2	2	1	7	1	18
Better co-operation needed between MNR, councils, and people	3	2	1	3	—	2	—	11
Plan ahead - define extractive zones	—	4	—	4	—	4	—	12
TOTAL	22	13	7	30	2	13	5	92

COMMENTS RE WORKING PARTY'S STUDY

Don't trust MNR	3	1	1	—	—	—	—	5
Study poor - snow job	4	—	3	3	—	—	—	10
Makeup of Working Party poor	3	2	2	3	—	—	—	10
MNR oriented in favour of gravel industry	2	—	1	—	—	—	—	3
Moratorium on new licenses until complete revision of Pits & Quarries Act	1	—	—	1	—	—	1	3
TOTAL	13	3	7	7	—	—	1	31

OTHER COMMENTS

Ensure enough gravel available for future	2	2	1	1	—	1	—	7
Substitute or recycle material	1	—	—	2	1	2	—	6
We waste too much material	1	2	1	2	—	—	—	6
Reduce per capita use	—	6	1	2	1	—	—	10
Make people more aware that supplies are limited	—	—	—	—	1	—	—	1
Aggregate is under-priced	1	—	—	3	—	—	—	4
Complaints re wayside pits	1	3	2	4	—	2	2	14
Detailed and technical comments	1	3	2	2	4	2	3	17
Specific concerns regarding property	—	—	3	5	1	3	1	13
TOTAL	7	16	10	21	8	10	6	68
TOTAL OF ALL STATEMENTS	209	115	71	319	23	90	20	847

*includes Open House records, coupons, and letters received by July 20, 1976.

Appendix 3

TOWARD THE INVENTORY OF
ONTARIO'S MINERAL AGGREGATES

by

W.R. Cowan

Phanerozoic Geology Section,
Geological Branch,
Ontario Ministry of Natural Resources.

DEDICATION

This paper is dedicated to the memory of the late Donald F. Hewitt whose recognition of the need for mineral resource planning led to the inventory of our mineral aggregates.

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INTRODUCTION

The management of non-renewable resources in areas of high land use stress requires acceptance of the concept of sequential land use planning. To accomplish such planning, and to avoid their sterilization, adequate inventories of naturally occurring mineral resources are necessary, particularly mineral aggregates which are a high volume-low unit price commodity. In Ontario the inventory of mineral aggregates is the task of the Phanerozoic Geology Section, Geological Branch of the Ontario Ministry of Natural Resources which is responsible for the geological survey of Ontario's post Precambrian soil and rock materials. With the help of many agencies and individuals we are now in a position to provide aggregate inventories to most municipalities within the more densely populated areas of Ontario. In this regard we feel we are the leader amongst North American State and Provincial Geological Surveys.

This paper will outline the development and methodology of our inventory and is directed at the primary users i.e. planners, municipal officials, and consulting engineers. The inventory of Ontario's mineral aggregates may be divided into three phases, The Early Years, The Present Inventory, and The Future.

THE EARLY YEARS (1948-1968)

Modern day inventory of Ontario's mineral aggregates may be considered to have begun in 1948 when Donald F. Hewitt was appointed Industrial Minerals Geologist for the Province of Ontario. Following several years reporting on the numerous industrial minerals which occur within the Grenville Structural Province, Dr. Hewitt directed his attention to the study of commercial limestone deposits which resulted in a detailed report in 1960. At about that time, (1957-1964) Dr. P.F. Karrow mapped Pleistocene geology for the Ontario Department of Mines within areas identified as containing possibly large gravel resources. These two men combined efforts to produce "Sand and Gravel in Southern Ontario" (1963) which relied heavily on the reconnaissance scale physiographic mapping of L.J. Chapman and D.F. Putnam (1951). Simultaneously Dr. Hewitt was drawing attention to the rapid urban expansion in Ontario, the need for sequential land use planning, for the rehabilitation of pits and quarries, and the urgent need to inventory and properly manage our finite resources of mineral aggregates as well as other industrial minerals (Hewitt, 1962, 1968; Hewitt and Vos, 1970; Hewitt and Yundt, 1971). The Niagara Escarpment Protection Act (1970) and its successor, The Pits and Quarries Control Act (1971) in part resulted from Dr. Hewitt's tireless efforts. These served to focus attention on the mineral aggregate industry and brought the need for aggregate inventory and planning to a state of urgency.

THE PRESENT INVENTORY (1968-1980)

To carry out aggregate inventories the first need is maps of bedrock formations, which may be used as crushed rock sources, and maps of the unconsolidated surficial soil materials (variously refer-

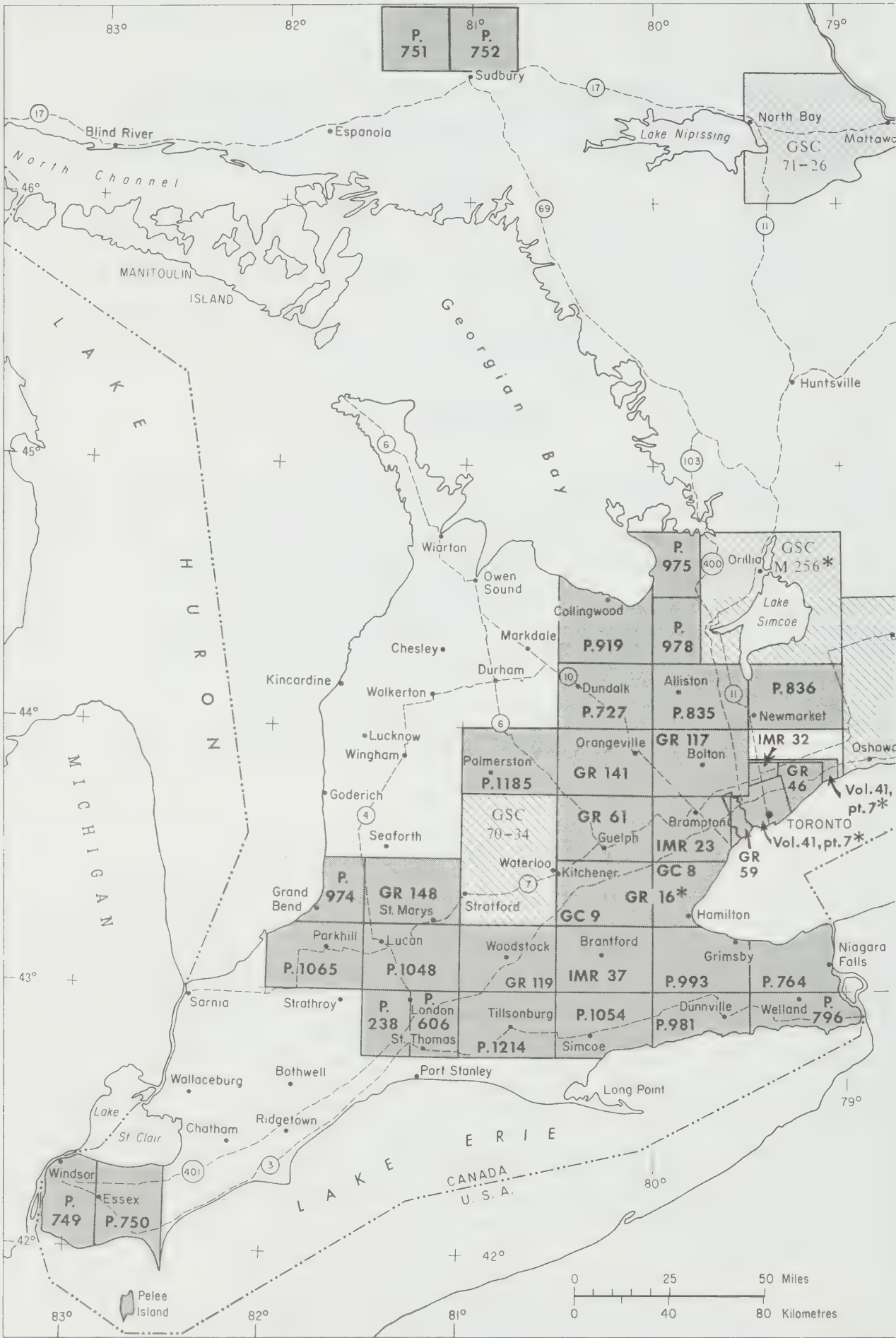
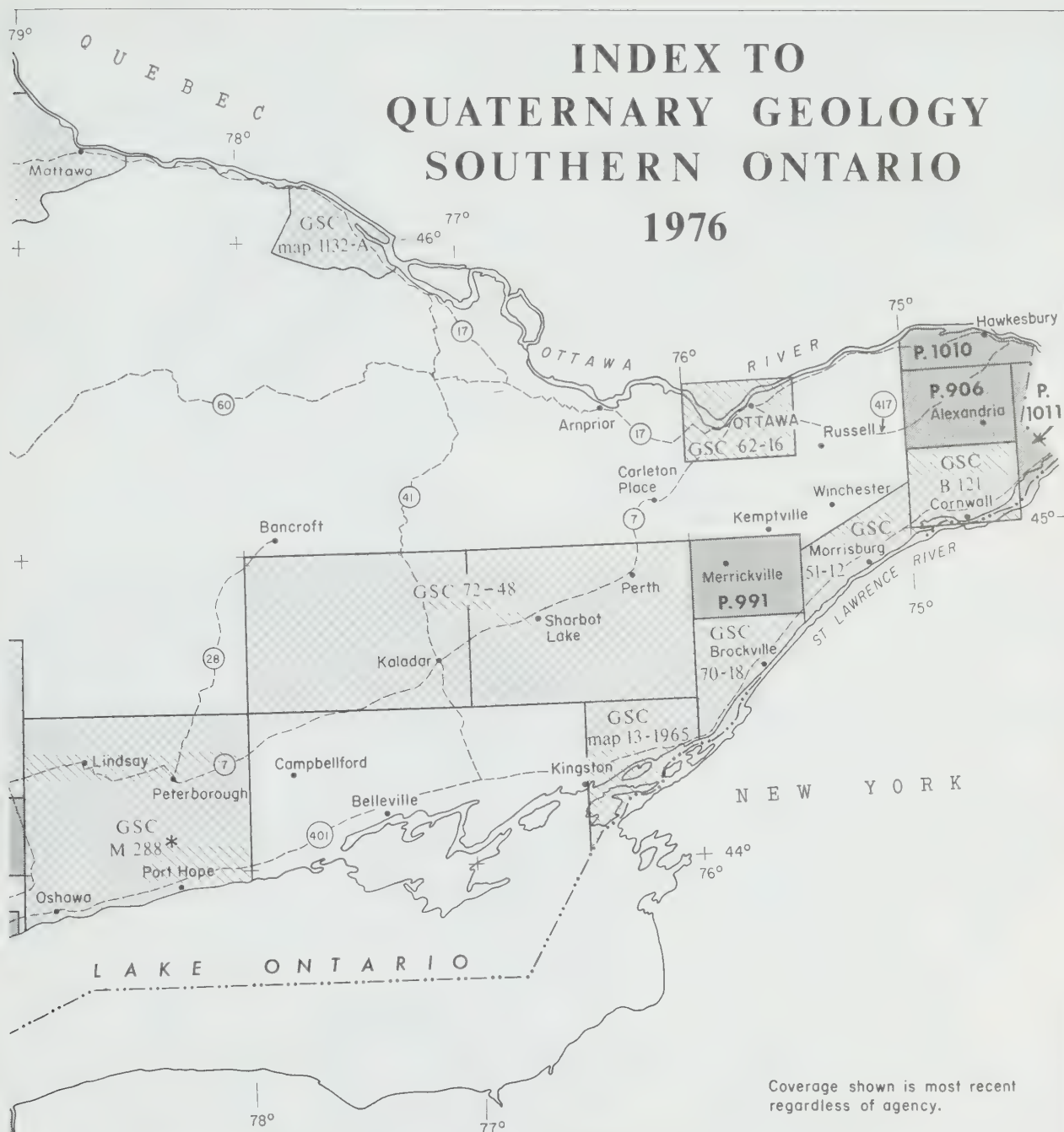



Figure 1—Index to published maps and reports of Quaternary geology in southern Ontario.

INDEX TO QUATERNARY GEOLOGY SOUTHERN ONTARIO 1976




Coverage shown is most recent regardless of agency.

SYMBOLS

	Area covered by ODM report and/or map
P	Preliminary Map
GC	Geological Circular
GR	Geoscience Report
Vol.	Annual Report
IMR	Industrial Mineral Report
*	Out of print

Available from:

Ontario Ministry of Natural Resources
Map Unit, Public Service Centre
Whitney Block, Queen's Park
Toronto, Ontario M7A 1W3

	Area covered by GSC report and/or map
M	Memoir
B	Bulletin
72-48	GSC Paper
map 1132-A	GSC Map

Available from:

Publications Office
Geological Survey of Canada
601 Booth Street
Ottawa, Ontario K1A 0E8

Appendix 3

red to as maps of glacial geology, surficial geology, Pleistocene geology, and Quaternary geology) for locating surface or near surface deposits of sand and gravel. By 1968 bedrock maps were available for most of southern Ontario, however only a few thousand square miles of surficial geology had been mapped by the Ontario Department of Mines and the Geological Survey of Canada (GSC). Consequently mapping of Quaternary geology was re-activated by the Ontario Department of Mines in 1968 with the hiring of one Quaternary geologist. The staff was continuously increased until by 1974 we had six Quaternary geologists (presently four), one Paleozoic geologist, and two Resource geologists. In addition a limited amount of contract work has been carried out.

The result of this increased effort to map the surficial materials at a scale of about one inch to one mile is shown in Figure 1; note that much of the area east of Toronto was mapped by the GSC without which we would be in a much less fortunate position to carry out inventories. In addition we have mapped the area immediately surrounding the northern centres of Sudbury, Sault Ste. Marie, and Thunder Bay, while the Timmins-Kirkland Lake area was mapped by the GSC, though at a smaller scale. It is hoped that by 1980 we will have surficial geological maps available, from one source or another, for the southern part of the Province underlain by Paleozoic bedrock formations.

Bedrock Aggregates

Maps showing the location of bedrock aggregates within a municipality are relatively easy to obtain. Firstly the bedrock geology map is examined to determine whether any suitable formations are present within the area. This suitability depends on physical properties and the capability of the rock to withstand stresses placed upon it when it is used as a construction material. Surprisingly few areas are underlain by quality aggregate forming rocks, the best in southern Ontario being the rock which forms the cuesta of the Niagara Escarpment. Given a suitable rock unit a map showing the thickness of overburden is consulted to determine the feasibility of quarrying the rock; generally 25 feet of overburden is considered to be the maximum though up to 50 feet or more is tolerated for special products. This information is combined to show the areal extent of feasible quarrying. This is then combined with a rock thickness estimate and specific gravity to give a gross tonnage estimate. Obvious cultural constraints may be subtracted to give a net tonnage. The data may then be submitted to a municipality for extractive zoning consideration.

Granular Aggregates

The assessment of granular aggregates is somewhat more complex than that of the bedrock due to a greater number of deposits (though of smaller size), a greater variety of materials, and available information is often of a lesser quality. Much more interpretation is involved and the degree of error can be high though tonnage estimates would usually be conservative. Reports provided to municipalities contain two or three maps; a Quaternary geology map, a granular aggregates probability map, and an extractive area recommendation map. Usually only the first and one of the two latter maps would be provided depending on the nature of the available data.

QUATERNARY GEOLOGY MAPS

These maps show the distribution, nature, and stratigraphy of the various glacial deposits found within an area. Figure 2 is a simplified example of such a map. These usually show a variety of tills (mixtures of mud and rock fragments deposited by a glacier, Photo 1) of different ages and compositions; sands deposited by glacial meltwaters flowing as rivers (outwash sands) or deposited into glacial lakes (lacustrine sand); silts and clays deposited by and into glacial meltwaters; and gravels deposited by glacial meltwaters (outwash gravels), as beach or deltaic gravels related to glacial lakes, or as eskers, kames, and morainic deposits collectively described as ice-contact stratified drift because of their deposition in contact with ice near the glacial margins.

Quaternary geology maps are constructed through combining field data, filed geotechnical data obtained from government or private engineering agencies, and air photo interpretation. Field work consists of traversing roads and carrying out routine examinations of road cuts, gravel and sand pits,

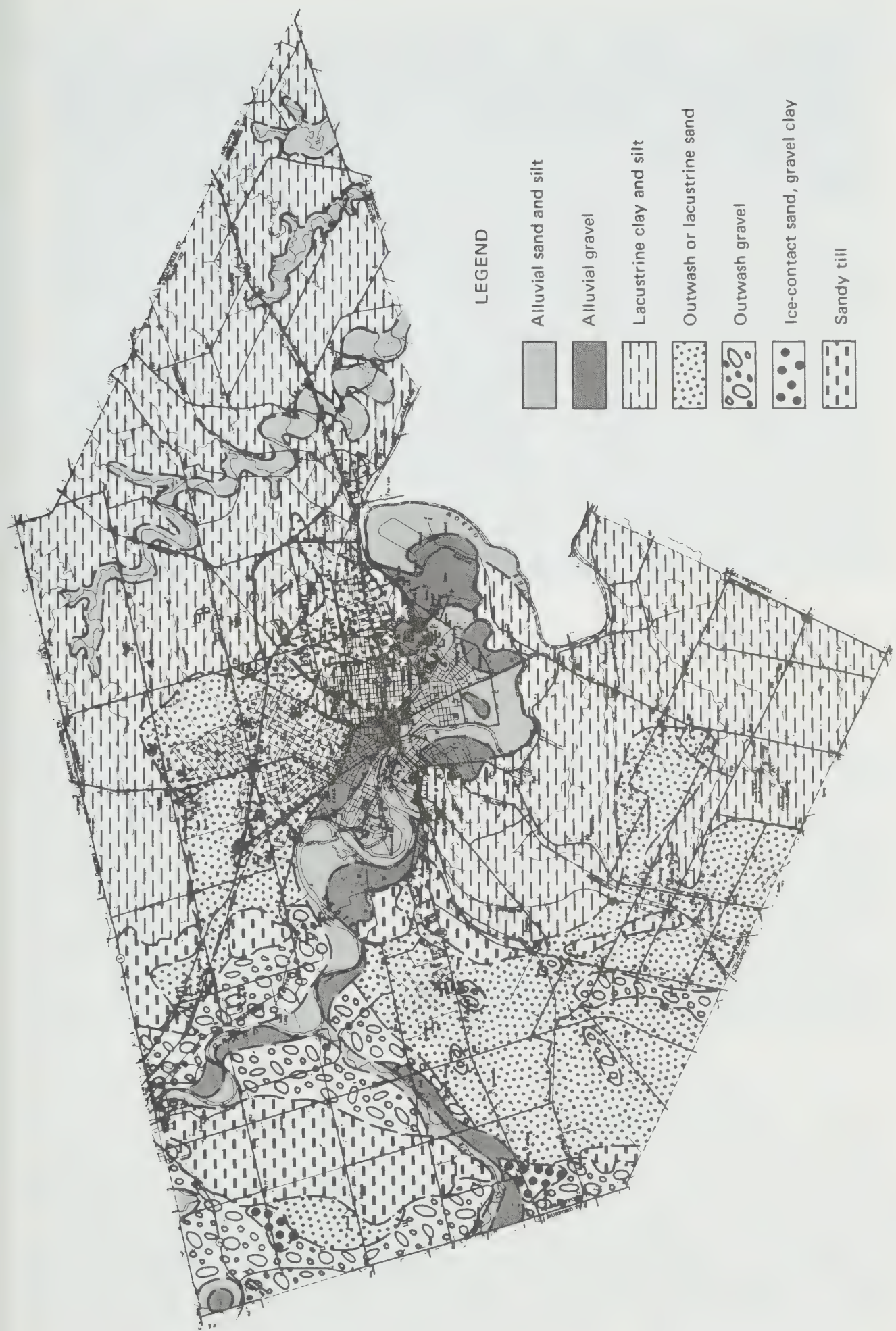


Figure 2—Brantford Township, generalized Pleistocene geology.



Photo 1—Till (sandy silt texture), Harriston Ontario.

and excavations by test pitting and clearing of debris, and through augering with soil testing apparatus. Stream and lake bluffs are examined and additional information is gained from traversing private property when necessary. These data are useful in determining the nature, thickness, and vertical and horizontal relationships of different geologic units which are frequently discontinuous and very thin. Field surveys carried out by our crew, (one geologist and three university students employed for the summer), at a scale of 1:50,000, cover 300 to 500 square miles per summer depending on the complexity of the geology.

These field data are augmented from water well records maintained by the Ministry of Environment, geotechnical data filled by the Ministry of Transportation and Communications, and data provided by municipal and consulting engineers and pit or quarry operators. Combining the known data with air photo interpretation results in a map which superficially is a two dimensional portrayal of the geology; however a trained geologist judiciously using the legend and any accompanying report can formulate a reasonable understanding of the three dimensional picture.

GRANULAR AGGREGATES PROBABILITY MAPS

The Quaternary geology map is a basic tool for use by geologists, soils engineers, and persons conversant in geology. However many users require derivative maps which sort mapped variables into a specific theme for direct application. For this reason we produce granular aggregates probability maps which divide the mapped area into high, moderate, or low categories depending on the interpreted potential a specific zone has for aggregate production. In some instances the area is divided into units indicating possible number of tons per acre. Similar maps have been produced in Illinois (e.g. Hackett and McComas, 1960) and in Colorado (Schwochow *et al.* 1974) though the latter are not described as probability maps.

The probability maps are direct interpretations of the geology and are best compiled by a geologist familiar with the area. The stratified, aggregate forming, glacial deposits of southern Ontario are summarized below and in Table 1 to demonstrate how a probability designation for a map unit might be interpreted from a Quaternary geology map.

Types of Deposits

GLACIOFLUVIAL SEDIMENTS

Outwash

Outwash deposits are sands and gravels deposited by glacial meltwaters beyond the glacier margins. They occur as sheet deposits or as terraced valleyfills (valley trains) and may be very large in size. Well developed outwash deposits have predominantly horizontal bedding (Photo 2), are generally uniform in size composition, and large clasts are rounded. Less well developed outwash is more variable in terms of sizing. Proximal (near ice) facies may have ice-contact features. The probability of locating useful granular aggregates is high to moderate depending on how much information on size grading and thickness is available. Several of the best gravel deposits in Ontario are located in this type of material e.g. the deposits of Caledon, Erin, Paris, Guelph, and the large undeveloped deposits of Grey County.

Ice-Contact Deposits

These include materials deposited by glacial meltwaters in contact with the glacier itself. Associated landforms are eskers, kames, end moraines (kame moraines), and ice-contact terraces (kame terraces). They are characterized by wide ranges of particle sizes (boulders to clay) and extreme variability, deformation structures (Photo 3), till inclusions, variable crossbedding, and hummocky topography are common.

Ice-contact Terraces (kame terraces): These are glaciofluvial features deposited between the glacier and a confining topographic high such as the Niagara Escarpment. The deposits are similar to outwash except that they have extensive ice-contact features on the ice border side. They most commonly occur along the Niagara Escarpment and in re-entrants in the Escarpment such as the Hockley Valley. The probability of locating aggregates is high though the quality may be unpredictable. They are generally quite large in areal extent.

Eskers: These sinuous ridges usually parallel the local direction of glacier retreat and represent the deposits of meltwaters flowing in tunnels within or beneath the ice or in narrow channels on the ice surface. They vary greatly in size and commonly consist of a gravel core flanked by sands. The probability of locating aggregates in these features is high though sand may predominate and much variability may be expected.

Virtually all eskers in southern Ontario have had pits in them at one time and many eskers have nearly been excavated in their entirety. On the other hand many of the large eskers have large remaining aggregate resources. Examples of eskers presently being worked are found at Frankford, Norwood, Omemee, Brampton, and Seaforth. The linear nature of eskers poses problems in planning as they cross numerous property lines; for example the Brampton esker has been worked in nine different locations over a three mile length.

Kames: By definition these are isolated hills or knobs of ice-contact stratified drift. Classic examples are sparse in southern Ontario though features of similar origin are common. They form as small deltas, crevasse fillings, and depression fillings on or in contact with the glacier. On melting of the glacier they remain as collapsed features. They have a moderate probability of containing coarse aggregates. The deposit size and variability of material usually relegates these features to secondary sources and very few can maintain permanent processing equipment.

TABLE 1 | TYPES OF SAND AND GRAVEL DEPOSITS AND THEIR PROPERTIES.

PROPERTIES	GLACIOFLUVIAL			
	Outwash		Ice-contact	
	Sheet Deposits	Valley Train	Esker	Kame
Shape (Plan)	Tabular	Elongate	Elongate	Equi-dimensional
Topography	Flat (may be pitted)	Flat-terraced	Rolling-beaded ridge	Hummocky
Associated features		Meltwater channels	Commonly to glacial flow	Ice-contact slopes
Thickness (feet)	5-100	5-100	10-100	10-100+
Bedding	Largely horizontal variable development	Abundant X-bedding	Abundant X-bedding	Abundant X-bedding
X-bed orientation	Variable	Well oriented	Variable, may be well oriented	Very variable
Sorting	Poor to moderate	Poor to moderate	Poor to moderate	Poor to moderate
Rounding (pebbles)	Subangular to rounded	Subangular to rounded	Subangular to rounded	Angular to subrounded
Deformation (faulting and slumping)	Very local	Very local	Common	Common
Other features	Proximal - distal facies	—	Highly variable	Highly variable, till inclusions
Coarse aggregate probability	Moderate to high	High	Moderate	Moderate
Comments	Uniform to variable	Uniform	Variable	Very variable

GLACIOLACUSTRINE

GLACIOMARINE

Moraine	Beach	Delta	Beach	Delta
Broad Elongate	Elongate	Tabular	Elongate	Tabular
Hummocky ridge	Bar or Bluff	Flat top, delta front	Bar or Bluff	Flat top, delta front
⊥ to glacial flow	Existing lakes nearby	Existing lakes nearby	Occur around topographic highs	Related shorelines
10-100+	5-40	10-100	5-40	10-100
Abundant X-bedding	Well stratified, X-bedding common	Largely horizon- tal, may have foresets	Well stratified plane bedding, some X-bedding	Largely horizontal, may have foresets
Very variable	Bimodal to variable	May be well oriented	Bimodal to variable	May be well oriented
Poor to moderate	Poor to well	Poor to moderate	Poor to well	Poor to moderate
Angular to subrounded	Subangular to well rounded	Subangular to rounded	Subangular to well rounded	Subangular to rounded
Common	Nil	Very local	Nil	Very local
Highly variable till may be present	Pebbles may be imbricated	—	Pebbles may be imbricated, fossil- iferous, clay bands	May be fossiliferous
Moderate to low	High on coarse substrate	Low	High on coarse substrate	Low
Very variable	Uniform, may be fine	Fine	Uniform, may be clayey in offshore bars	Fine



Photo 2—Well stratified outwash gravel, Paris Ontario.



Photo 3—Slump features in esker, Wingham Ontario.



Photo 4—Well sorted beach gravels, Port Elgin Ontario.

End Moraines: These are belts of glacial drift deposited at and parallel to the glacial margin. They frequently consist of ice contact stratified drift and in such instances they are often referred to as kame moraines. The Oak Ridges, Orangeville, and Waterloo Moraines have been described as kame moraines though this is an over simplification in places. Kame moraines frequently result from deposition between two glacial lobes (interlobate moraines).

These features pose a great problem to planners. They may be very large and contain vast aggregate resources, however the location of the aggregates is usually only poorly defined. How does a planner consider a large area for extractive zoning when the geologist tells him that only ten or twenty percent of the area is actually underlain by good aggregates. This remains a challenge for the geologist.

Probability of locating aggregates within such features is moderate to low. Exploration and development costs are high. The large number of pits and the variability of materials in Whitchurch and Uxbridge Townships are an example of the problem.

GLACIOLACUSTRINE DEPOSITS

These are the vestiges of former large lakes which formed when glaciers dammed up the natural drainage system. Several blockages of the St. Lawrence drainage system left numerous beach and deltaic features in southern Ontario. In northern Ontario glaciers retreating northward toward Hudson Bay upheld large lakes which normally would have drained northward.

Beach Deposits: Glacial lake shorelines are indicated by erosional bluffs or depositional features such as beaches and bars. The latter frequently contain useful aggregates. Well developed beach deposits are well stratified, are sorted into discrete size ranges (Photo 4), and pebbles and cobbles are well rounded and may be imbricated. Composition depends on the nature of the materials being reworked to form the beach and the size and time span of the attendant lake. The probability of locat-

Appendix 3

ing coarse aggregates is high when the deposit is developed from a coarse substrate, such as stony till, and low when developed on fine grained materials. Beaches are linear, narrow features usually less than 20 feet thick and frequently less than 10 feet thick; large baymouth bars may be many times thicker than this.

Beach deposits of the well known Lake Iroquois have been worked in many places along the north shore of Lake Ontario. Many of these pits are now depleted and several have been reclaimed for use as parks, housing projects, or landfill sites.

Deltas: These formed when streams or rivers of glacial meltwaters debouched into lakes with subsequent deposition of transported sediments. In Ontario these deposits tend to consist mainly of sand and much silt. However in near ice or ice-contact situations coarse material may be present. The delta-beach complex of the so-called Fonthill Kame is an example of this. In other situations channel fills may provide coarse material or the upper beds (topsets) of the delta may essentially consist of outwash gravel; the deposits north of London are believed to be an example of the latter. Although deltaic deposits may be very large, the probability of obtaining coarse material is generally low.

MARINE-GLACIOMARINE DEPOSITS

Surficial deposits of marine origin occur in eastern Ontario (Champlain Sea) and in the James Bay Lowland (Tyrrell Sea). These represent marine incursions while the land areas were recovering from the depression caused by the large mass of the recently withdrawn glaciers. Potential aggregate sources are similar to the lacustrine deposits.

Beaches: Beach deposits in eastern Ontario range from rock rubble, where beaches are weakly developed on thin bedded limestones, to well sorted gravels developed on coarse tills or older glaciofluvial materials. Fossil molluscs are present and clay beds may cause processing problems. Here too, beach deposits are linear and may pose planning problems; also many of these deposits are very small. The best beach deposits in eastern Ontario are reworked glaciofluvial materials as at Twin Elm, Herberts Corners, and Greely.

Deltas: Deltaic deposits laid down in the Champlain Sea consist mainly of fine sand. The deltas near Ottawa and Petawawa are examples. These materials are mainly useful for fill, sand cushion and other low value products.

EXTRACTIVE AREA RECOMMENDATION MAPS

If data are sufficient the geologist may interpret beyond the probability map shown in Figure 3 and make recommendations to the planners based on calculated "Possible"¹ aggregate reserves. These are determined from measured map area, a thickness estimate, and a tonnage factor of 2,500 tons per acre per foot of depth for sand and gravel. In areas underlain by suitable bedrock formations, this potential is calculated as well. Obvious cultural constraints are subtracted from the gross tonnage to give net tonnage for each deposit—this may only be a percentage factor in many cases. The various deposits are then ranked in terms of importance and recommendations are made to the municipality as to which deposits should be given priority for extractive zoning.

Figure 4 and Table 2 illustrate the data supplied for Brantford Township in southern Ontario (Cowan, 1976) for six deposits considered to contain important aggregate resources. In this case an official of the Ontario Division of Mines met with municipal officials and representatives from the aggregate industry to discuss the recommendations. Additional information from industry representatives allowed a size reduction of the areas and further reductions were made due to cultural and environmental conflicts. Through discussion accord was reached and the most important aggregate areas accepted for extractive zoning.

¹Performance Standards of the Association of Professional Engineers of the Province of Ontario.



Figure 3—Brantford Township, showing areas of high, moderate and low probability of having coarse granular aggregate.

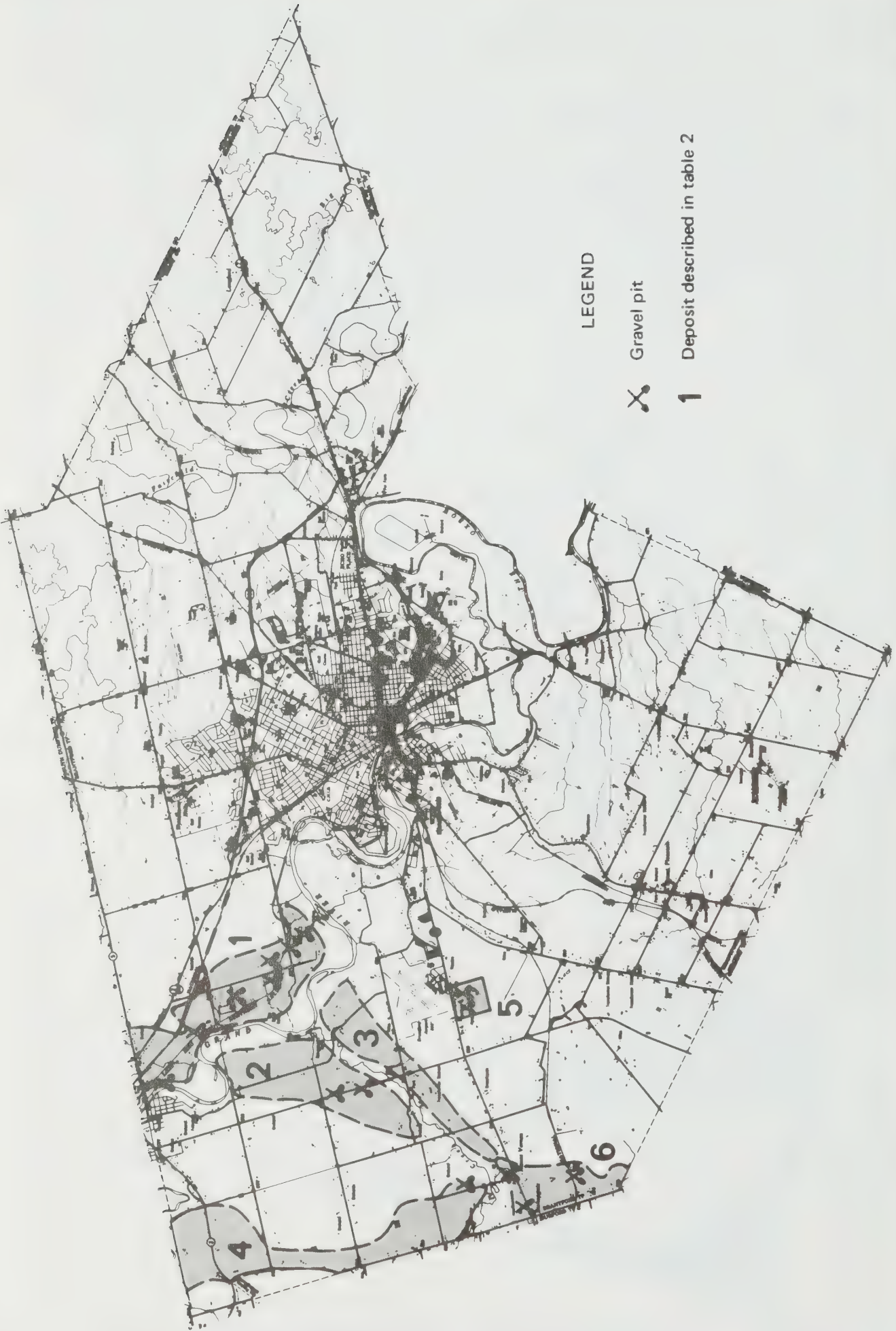


Figure 4-Brantford Township, showing areas recommended for extractive zoning.

TABLE 2

POSSIBLE AGGREGATE RESERVES FOR MAJOR DEPOSITS IN
BRANTFORD TOWNSHIP (ABOUT 55 PERCENT OF POSSIBLE
TOWNSHIP RESERVES). APPROXIMATELY 1400 ACRES WERE
LICENSED IN 1975.

Area on Map	Approx. Acreage	Estimated Average Thickness (feet)	Gross Tonnage (Millions of Tons)	Estimated Cultural Loss %	Net Tonnage (Millions of Tons)
1	1000	30	75	10	67
2	1200	20	60	5	57
3	800	20	40	10	36
4	1750	25	109	10	98
5	175	20	8.8	5	8.3
6	650	30	48.8	15	41
TOTAL	5575				307

Summary

The above example provides a model for other groups to act upon, however it may only be accomplished when the basic data are available and are provided to the municipality in a suitable format. The Ministry of Natural Resources, through the Geological Branch, Division of Mines, has proposed to provide similar information to all townships now designated under the Pits and Quarries Control Act, 1971; it is expected that this will be expanded to include most of the heavily developed part of the Province within the near future.

The task of refining the rough data provided by the Ministry is monumental in some cases. In Brantford Township the aggregate industry was able to provide data which allowed streamlining. This is not going to be available in many areas and the municipalities must be prepared to accept the responsibility of either proving out aggregate resources or zoning extractive areas in which the resources are inadequately outlined.

THE FUTURE

The future of aggregate inventory in Ontario appears to be tripartite. Firstly much of central and northern Ontario has not been investigated though major targets have been outlined along the north shores of Lakes Huron and Superior (Gartner Lee Associates Limited, 1974). Inventory of these areas will proceed as funding allows.

Secondly, in southern Ontario large areas of morainic deposits mapped as ice-contact stratified drift have to be re-investigated to define those areas actually underlain by economic aggregate resources. This will involve knowing the sedimentation history of the deposits and developing a co-ordinated geophysical and test drilling approach to measuring the resources. Until such an approach is refined we will be unable to provide the planners with adequate information. Similar methods will be required to explore buried aggregate resources. Given the techniques, who will pay for these costly procedures.

Finally, the investigation of geologic alternatives to the naturally washed sands and gravels we now use must be considered. What, for example, is the potential for producing aggregates from coarse grained bouldery tills. This must be investigated; though processing costs would be higher these could be recovered by reducing transport costs. Alternate bedrock sources may exist; the physical properties of different facies of bedrock formations are not well known at present. The underground mining of bedrock aggregates is a topical solution to much of the problem, but no data to feasible proposals have come to light.

ADDITIONAL STUDIES

Auxiliary to the program carried out by the Phanerozoic Geology Section, the Division of Mines has commissioned several studies related to the regional planning exercise. Firstly, in 1973-74 a study was made of the Regional Municipality of Waterloo and South Wellington County by C.R. Bryant and A.G. McLellan of the University of Waterloo (1974). This study consisted of an aggregate inventory and inventory methodology, a computer study of a large gravel deposit, and recommendations for the effective planning of the areas underlain by aggregates.

From 1974-1976, the Ministry has had the Proctor and Redfern Group Limited analyse the aggregate needs, availability, and planning requirements and problems for the Central, Eastern, and Southwestern Ministry of Natural Resources Regions respectively. These served to outline the problems ahead if resource planning is improved and also provided the public with a greater awareness of the problem.

CONCLUSIONS

Though the inventory of Ontario's mineral aggregate is incomplete we have provided or will provide in the immediate future inventory data for all municipalities designated under the Pits and Quarries Control Act, 1971. We plan to be able to do this for all southern Ontario and principal commercial centres of northern Ontario by 1980. In this regard we feel we have no North American peers. The immediate challenge is for all levels of government, environmentalists, planners, the aggregate producers, and others to recognize that these are non renewable resources, that they are finite, that there is presently no alternative, that they must be conserved, and that accord must be reached.

Future needs require that we determine the extent of poorly defined and buried aggregates and that we look for natural alternatives.

ACKNOWLEDGMENTS

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APPENDIX 3A

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APPENDIX 3B

PUBLISHED REPORTS: RECOMMENDATIONS

FOR SAND AND GRAVEL EXTRACTIVE AREAS

ADJALA

OFR 5199 Recommendations for Sand and Gravel Extractive Areas, Adjala Township, Simcoe County, Southern Ontario (30 M/13W, 31D/4W); by Q.H.J. Gwyn, approximately 8p., 2 tables, 3 maps.

BRANTFORD

OFR 5200 Recommendations for Sand and Gravel Extractive Areas, Brantford Township, Brant County, Southern Ontario (40 P/1); by W.R. Cowan, approximately 8p., 2 tables, 2 maps.

BRIGHTON

OFR 5201 Recommendations for Sand and Gravel Extractive Areas, Brighton Township, Northumberland County, (31 C/4); by John Z. Fraser, approximately 9p, 2 tables, 1 map.

BROCK

OFR 5164 Recommendations for Sand and Gravel Extractive Areas, Brock Township, Southern Ontario (31 D/6, 7; 30 M/2,3); by Q.H.J. Gwyn, 10p., 2 tables, 3 maps.

Appendix 3

CALEDON

OFR 5202 Recommendations for Sand and Gravel Extractive Areas, Caledon Township, Peel County, Southern Ontario (30 M/12W, 13W; 40 P/16E); by John Z. Frazer, approximately 11p., 2 tables, 2 maps.

CRAMAHE

OFR 5203 Recommendations for Sand and Gravel Extractive Areas, Cramahe Township, Northumberland County, Southern Ontario (30 N/13W; 31 C/4W); by John Z. Frazer, approximately 8p., 2 tables, 2 maps.

ERAMOSA

OFR 5188 Recommendations for Sand and Gravel Extractive Areas, Eramosa Township, Southern Ontario (40 P/9); by G.J. Burwasser, approximately 14p, 2 tables, 3 maps.

ERIN

OFR 5189 Recommendations for Sand and Gravel Extractive Areas, Erin Township, Southern Ontario (30 M/12W; 40 P/9E, 16E); by W.R. Cowan, approximately 10p., 2 tables, 4 maps.

GUELPH CITY

OFR 5190 Recommendations for Sand and Gravel Extractive Areas, Municipality of Guelph (Guelph City), Southern Ontario (40 P/9E); by G.J. Burwasser, approximately 12p., 1 table, 2 maps.

GUELPH TOWNSHIP

OFR 5191 Recommendations for Sand and Gravel Extractive Areas, Guelph Township, Southern Ontario (40 P/8, 9), by G.J. Burwasser, approximately 12p., 2 tables, 3 maps.

MANVERS

OFR 5204 Recommendations for Sand and Gravel Extractive Areas, Manvers Township, Durham County, Southern Ontario (31 D/2E, 7E); by Q.H.J. Gwyn, 11p., 2 tables, 2 maps.

MONO

OFR 5205 Recommendations for Sand and Gravel Extractive Areas, Mono Township, Dufferin County, Southern Ontario (30 M/13W; 31 D/4W; 40 P/16E; 41 A/E); by W.R. Cowan and Q.H.J. Gwyn, 11p., 2 tables, 4 maps.

MULMER

OFR 5206 Recommendations for Sand and Gravel Extractive Areas, Mulner Township, Dufferin County, Southern Ontario (31D/4W; 41 A/1E, 8E); by Q.H.J. Gwyn, 10p., 2 tables, 3 maps.

PILKINGTON

OFR 5192 Recommendations for Sand and Gravel Extractive Areas, Pilkington Township; Southern Ontario, (40 P/9W; 10E); by G.J. Burwasser, approximately 11p., 2 tables, 2 maps.

PUSLINCH

OFR 5193 Recommendations for Sand and Gravel Extractive Areas, Puslinch Township, Southern Ontario (40 P/8, 9); by G.J. Burwasser, approximately 13p., 2 tables, 3 maps.

NORTH DUMFRIES

OFR 5207 Recommendations for Sand and Gravel Extractive Areas, North Dumfries Township, Waterloo County, Southern Ontario (40 P/8); by W.R. Cowan, 11p., 2 tables, 2 maps.

SOUTH DUMFRIES

OFR 5208 Recommendations for Sand and Gravel Extractive Areas, South Dumfries Township, Brant County, Southern Ontario (40 P/1,8); by W.R. Cowan, 11p., 2 tables, 4 maps.

WHITCHURCH

OFR 5178 Recommendations for Sand and Gravel Extractive Areas, Whitchurch Township, Southern Ontario, (30 M/14; 3l D/3)); by Q.H.J. Gwyn, 8p., 2 tables, 3 maps.

Appendix 4

THE DEMAND FOR MINERAL
AGGREGATES:

A REVIEW AND ANALYSIS

by

G. Anders

Ministry of Natural Resources

J. Donnan

Ministry of Environment

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INTRODUCTION

In reviewing the status of mineral aggregates in Ontario, the prime consultants, Proctor and Redfern Limited, constructed a predictive model of aggregate demand. This model, with minor modifications, has been utilized in all three regional studies (Central, Southwestern and Eastern Ontario) prepared for the Ministry of Natural Resources.

In preparing background and recommendations regarding the current and future extraction of mineral aggregates in Ontario, the Mineral Aggregate Working Party felt it necessary to critically review both the methodology and projections provided by Proctor & Redfern. Due to timing, this review focuses on the forecasting model as presented in the Central Ontario report.

SCENARIO 1

PROCTOR & REDFERN DEMAND MODEL

The model developed by Proctor & Redfern estimates the future demand for mineral aggregates on the basis of a single scenario of regional population, per capita income, gross provincial product

TABLE 1 | SCENARIO 1: MINERAL AGGREGATE DEMAND IN CENTRAL ONTARIO THROUGH 2001; PROCTOR & REDFERN MODEL.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	43.8	17.5	61.3	176.9
1980	50.9	20.4	71.3	446.7
1985	58.9	23.5	82.4	837.8
1990	77.8	31.1	108.8	1320.2
2001	102.0	40.7	142.7	2776.7

¹ Cumulative demand starts January 1, 1974.

Source: Mineral Aggregate Study, Central Ontario Planning Region, Ontario Ministry of Natural Resources, prepared by Proctor & Redfern Limited, Table 5.4.

and the resulting value of construction through the year 2001. In short, the process involves:

- adjusting gross provincial product for the period 1947 through 1971 to remove variations in participation and employment rates, and the effects of inflation, and dividing by population to provide an adjusted 25 year per capita income time series in constant 1961 dollars.
- extrapolating the 1947-1971 time series to provide annual per capita income for Ontario in constant 1961 dollars through the year 2001.
- calculating gross provincial product through 2001 on the basis of per capita income projections and government population projections which assume medium fertility and a net annual provincial immigration of 70,000.
- adjusting this projected gross provincial product to reflect the author's expectation of a decline in labour force participation rates and near term employment fluctuations, and converting to constant 1971 dollars.

At this point the author develops two sets of demand projections for mineral aggregate, one for Ontario as a whole and one for the Central Ontario region. The provincial projection of aggregate demand is based on an extrapolation of value of construction in G.P.P. for an indeterminate period starting in the mid-1950s. Total value of construction is then broken down into three classes, residential, non-residential and engineering, on the basis of proportionate shares in the years 1951-56-61-66 and 1971, which have been adjusted to reflect the author's personal expectation of a "steadily improving housing situation"¹. The proportion of total value of construction accounted for by residential, non-residential and engineering expenditures is converted into tons of aggregate consumed, by applying input co-efficients. These input co-efficients represent the tons of aggregate consumed, per \$1,000 of construction. They appear to have been developed on the basis of personal knowledge and information. A complete set of background data has not been presented.

Demand in Central Ontario is calculated by estimating the proportion of total value of construction going into the region on the basis of relative population and population growth rates. Regional construction is then broken down by type of construction and the provincial input co-efficients are applied.

Results of the Proctor & Redfern model for Central Ontario and the province as a whole are summarized in Tables 1 and 2.

¹Mineral Aggregate Study, Central Ontario Planning Region, Ontario Ministry of Natural Resources prepared by Proctor and Redfern Limited, page 5-2.

TABLE 2

SCENARIO 1: MINERAL AGGREGATE DEMAND IN ONTARIO THROUGH 2001; PROCTOR & REDFERN MODEL.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	95.8	36.7	132.5	383.7
1980	110.4	42.3	152.7	964.4
1985	127.7	49.0	176.6	1800.8
1990	147.8	56.7	204.5	2758.0
2001	225.2	86.4	311.6	5610.7

¹ Cumulative demand starts January 1, 1974.

Source: Mineral Aggregate Study, Central Ontario Planning Region, Ontario Ministry of Natural Resources, prepared by Proctor & Redfern Limited, Table 5.4.

In reviewing the Proctor & Redfern model, six sets of key variables are identifiable. These variables are summarized in Table 3. In reviewing this model, two key variables were selected for modification due to the availability of new data. These variables were the rates of population and per capita income growth.

In addition to the use of newly available data, an attempt was made to simplify the methodology employed by Proctor & Redfern. Only one procedure was open to simplification; the derivation of regional value of construction. Rather than deriving a regional value of construction indirectly from G.P.P., the model's complexity was reduced by developing a gross regional product based on projections of central region population and provincial per capita income.

SCENARIO 2

PROCTOR & REDFERN MODEL

ADJUSTED FOR NEW DATA AND SIMPLIFIED

The most recent provincial government projections of population are based on an expected low fertility and annual net immigration of 50,000. Per capita income is expected to grow at the rate of 3 per cent.

In adjusting population and per capita growth rates to incorporate this new data, projected provincial population for 2001 was reduced some 12 per cent from the Proctor & Redfern scenario while projected provincial per capita for 2001 was reduced some 7 tenths of a per cent.

Results produced using this adjusted scenario (Scenario No. 2) are summarized in Table 4. Adjustments in the methodology resulted in a 14.48 per cent decrease in projected cumulative demand for sand and gravel through 2001 and a 12.07 per cent decrease in projected cumulative demand for mineral aggregates as a whole, in Central Ontario.

Appendix 4

The adjusted model was also run for Ontario. Results are summarized in Table 5. Projected cumulative provincial demand through 2001 for sand and gravel was approximately 13.71 per cent less than that projected by Proctor & Redfern and projected demand for all aggregates was some 13.69 per cent lower.

TABLE 3	KEY VARIABLES AND THEIR VALUES IN THE PROCTOR & REDFERN MODEL.	
	Ontario	Central Region
Population Growth	Medium Fertility Net Immigration 70,000	Unknown
Per Capita Income	Adjusted Historic G.P.P. Series divided by Population and Extrapolated.	N.A.
G.P.P. Projections	Population times Per Capita Income adjusted for participation rate.	N.A.
Total Value of	Extrapolation using mid-1950's base.	Relative population and population growth rates.
Proportion of Value of Construction		
- Residential	33%	45%
- Non-Residential	35%	32%
- Engineering	32%	23%
Input Co-efficients		
Residential		
- Sand and Gravel	.00202	.00202
- Crushed Stone	.00122	.00122
Non-Residential		
- Sand and Gravel	.00432	.00432
- Crushed Stone	.00260	.00260
Engineering		
- Sand and Gravel	.03419	.03419
- Crushed Stone	.01163	.01163

Source: Mineral Aggregate Study, Central Ontario Planning Region, Ontario Ministry of Natural Resources, prepared by Proctor & Redfern Limited, Chapters 4, 5 and Appendix B.

TABLE 4

SCENARIO 2: SUMMARY OF DEMAND PROJECTIONS FOR CENTRAL ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	35.49	14.17	49.66	143.92
1980	42.67	17.04	59.72	368.99
1985	52.07	20.80	72.87	772.37
1990	63.81	25.48	89.29	1184.87
2001	98.31	37.26	137.57	2441.50

¹ Cumulative demand starts January 1, 1974.

TABLE 5

SCENARIO 2: SUMMARY OF DEMAND PROJECTIONS FOR ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	74.98	28.77	103.75	301.40
1980	89.34	34.28	123.63	768.93
1985	108.19	41.52	149.71	1461.80
1990	131.56	50.48	182.05	2305.26
2001	199.31	76.48	275.79	4842.11

¹ Cumulative demand starts January 1, 1974.

ALTERNATIVE SCENARIOS

In projecting the demand for mineral aggregate through the year 2001, the Proctor & Redfern model relies upon

- a simple extrapolation of per capita income based on 1947 through 1971 data.
- one population growth series.
- a single arbitrary distribution of total value of construction among residential, non-residential and engineering components.
- input co-efficients based on the price structure and technology existing in 1971.

On reviewing recent trends in construction activity and conflicting forecasts of economic growth, an examination of the impact of alternative futures on aggregate demand was considered advisable. Five alternative scenarios were produced on the basis of modifying:

- the rate of growth of per capita income both upwards and downwards.
- the distribution of value of construction among its various components.

Alternative population growth scenarios were not developed. Low fertility and 50,000 net annual immigration is considered to be most realistic due to birth rate and immigration trends. The input co-efficients developed by Proctor & Redfern were also used without change, due to the lack of data required for alteration.

SCENARIO 3

Tables 6 and 7 summarize results of mineral aggregate demand projections for the central region and Ontario based on a one per cent growth in per capita income through 2001, with no alteration of the proportionate distribution of construction expenditures.

TABLE 6

SCENARIO 3: SUMMARY OF DEMAND PROJECTIONS FOR CENTRAL ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	32.18	12.85	45.03	133.04
1980	34.73	13.87	48.60	321.55
1985	38.42	15.35	53.77	519.26
1990	42.72	17.06	59.78	856.90
2001	53.00	21.17	74.16	1,608.85

¹ Cumulative demand starts January 1, 1974.

TABLE 7

SCENARIO 3: SUMMARY OF DEMAND PROJECTIONS FOR ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	68.00	26.09	94.09	278.66
1980	72.72	27.90	100.62	670.29
1985	79.83	30.63	110.46	1,201.31
1990	88.09	33.80	121.89	1,787.48
2001	107.45	41.23	148.68	3,287.83

¹ Cumulative demand starts January 1, 1974.

SCENARIO 4

Tables 8 and 9 summarize regional and provincial demand projections based on a per capita income growth rate of 5 per cent and no change in the distribution of value of construction.

TABLE 8 | SCENARIO 4: SUMMARY OF DEMAND PROJECTIONS FOR CENTRAL ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	39.08	15.61	54.69	155.55
1980	49.26	19.67	68.94	408.29
1985	66.18	26.43	92.61	820.31
1990	89.55	35.68	125.03	1,376.79
2001	169.95	67.88	237.83	3,368.40

¹ Cumulative demand starts January 1, 1974.

TABLE 9 | SCENARIO 4: SUMMARY OF DEMAND PROJECTIONS FOR ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	82.57	31.68	114.25	325.75
1980	103.14	39.58	142.72	850.72
1985	137.49 1	52.76	190.25	1,699.62
1990	184.23	70.59	254.92	2,837.46
2001	344.55	132.21	476.76	6,856.87

¹ Cumulative demand starts January 1, 1974.

For the following scenarios, the distribution of value of construction was altered. Table 10 details the changes in distribution. The magnitude of change was arbitrarily chosen on the basis of

- an expected reduction in new highway construction.
- the possible impact of low growth sentiments on non-residential construction.
- an increased demand for housing units.

TABLE 10 BREAKDOWN OF PROPORTIONS OF CONSTRUCTION BY TYPE.				
Construction	Percent			
	Central Ontario		Ontario	
	P&R Study ¹	Changed	P&R Study ¹	Changed
Residential	45.0	50.0	33.0	38.0
Non Residential	32.0	29.5	35.0	32.5
Engineering	23.0	20.5	32.0	29.5
Total	100.0	100.0	100.0	100.0

¹ Mineral Aggregate Study, Central Ontario Planning Region, Ontario Ministry of Natural Resources, Prepared by Proctor and Redfern Limited, pages 5.3, 5.4.

SCENARIO 5

Tables 11 and 12 summarize revised demand projections with a 1 per cent growth in per capita income and the modified distribution of construction expenditures.

TABLE 11 | SCENARIO 5: SUMMARY OF DEMAND FOR CENTRAL ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	29.45	11.92	41.37	122.22
1980	31.78	12.86	44.64	295.41
1985	35.16	14.23	49.39	532.15
1990	39.09	15.82	54.91	795.47
2001	45.50	19.63	68.13	1,477.97

¹ Cumulative demand starts January 1, 1974.

TABLE 12 | SCENARIO 5: SUMMARY OF DEMAND FOR ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	63.53	24.56	88.10	260.90
1980	67.94	26.27	94.21	627.58
1985	74.59	28.86	103.42	1,124.78
1990	82.30	31.82	114.12	1,673.59
2001	100.39	38.81	139.20	3,078.33

¹ Cumulative demand starts January 1, 1974.

SCENARIO 6

Tables 13 and 14 present results of demand projected on the basis of a 3 per cent rate of growth in per capita income and the modified distribution of value of construction.

TABLE 13 | SCENARIO 6: SUMMARY OF DEMAND FOR CENTRAL ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	32.48	13.14	45.62	132.20
1980	39.05	15.80	54.85	338.94
1985	47.65	19.29	66.94	647.84
1990	58.39	23.63	82.02	1,026.76
2001	89.97	36.41	126.38	2,181.11

¹ Cumulative demand starts January 1, 1974.

TABLE 14 | SCENARIO 6: SUMMARY OF DEMAND FOR ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	70.06	27.09	97.15	282.20
1980	83.48	32.28	115.75	719.93
1985	101.08	39.08	140.17	1,368.66
1990	122.92	47.53	170.45	2,158.39
2001	186.22	72.00	258.22	4,533.61

¹ Cumulative demand starts January 1, 1974.

SCENARIO 7

Tables 15 and 16 summarize results of demand projections based on a per capita income growth of 5 per cent and a modified distribution of construction.

TABLE 15 | SCENARIO 7: SUMMARY OF DEMAND FOR CENTRAL ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	35.76	14.47	50.23	142.88
1980	45.08	18.24	63.33	375.05
1985	60.56	24.51	85.07	753.54
1990	81.77	33.09	114.86	1,264.73
2001	155.53	62.94	218.47	3,094.28

¹ Cumulative demand starts January 1, 1974.

TABLE 16 | SCENARIO 7: SUMMARY OF DEMAND FOR ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	77.14	29.83	106.97	304.99
1980	96.36	37.26	133.62	796.51
1985	128.46	49.67	178.13	1,591.31
1990	172.12	66.53	238.67	2,656.65
2001	321.92	124.47	446.38	6,420.00

¹ Cumulative demand starts January 1, 1974.

Statistical Tests

In reviewing the basic Proctor & Redfern model, two statistical tests were applied to the methodology employed; the 't-statistic' and 'Durbin-Watson statistic'. These tests gauge the validity of predicting the value of one variable on the basis of the value of others. In this instance, we are testing the validity of predicting value of construction on the basis of gross provincial product and mineral aggregate demand on the basis of value of construction. In all cases, the 't-statistic' was acceptable, but the 'Durbin-Watson' was low. These results indicate that the projected value of construction cannot be adequately explained by G.P.P. and similarly tonnage demanded cannot be adequately explained by the value of construction.

While the actual 't' and 'Durbin-Watson' values may change, the similarity between the basic methodology employed by Proctor & Redfern and subsequent modifications indicate these modifications are themselves a less than ideal result.

STRAIGHT LINE EXTRAPOLATION

In reviewing the results and methodology used to this point, the following anomalies were revealed,

- each scenario based demand projection has shown an increasing per capita consumption of aggregates, while actual figures for the period 1966-1975 show a decline.
- scenario results assume constant material inputs in value of construction, while actual figures for the period 1966-1975 show that materials account for a decreasing proportion of construction expenditures.
- an examination of detailed data on engineering expenditures for 1971 reveals the inclusion of a large number of low aggregate consumers (approximately 20 per cent of the categories value).

These anomalies, in conjunction with the statistical tests run on the original Proctor & Redfern model indicated the advisability of developing an alternative methodology for prediction.

In reviewing possible alternative methodologies and the data base available, a simple straight line extrapolation of historical data was selected for use. This extrapolation accommodates declining per capita consumption and declining value of material inputs in construction. While assumptions of linearity are a major simplification, the material as summarized in Table 17 may be considered a floor level for aggregate demand in Ontario.

TABLE 17 STRAIGHT LINE EXTRAPOLATION: SUMMARY OF DEMAND PROJECTIONS FOR ONTARIO.

TONS MILLIONS				
Year	Demand for Sand & Gravel	Demand for Crushed Stone	Total Demand	Cumulative Demand ¹
1976	87.91	35.58	123.49	347.59
1980	91.83	39.85	131.69	862.03
1985	96.73	45.19	141.92	1,551.16
1990	101.64	50.52	152.16	2,291.49
2001	112.42	62.27	174.69	4,100.42

¹ Cumulative demand starts January 1, 1974.

COMPARISON OF DEMAND PROJECTIONS

Table 18, compares the results of each demand projection for the province as a whole. Given the range of results produced, selection of a single most likely projection was considered unacceptable. In developing an expected range for aggregate demand, results of the straight line extrapolation were considered as a floor or minimum expected demand. Choice of moderate and maximum projections was based on the following criteria:

- the credibility of values attached to scenario variables.
- the relationship between projections and actual shipments as reported by Statistics Canada.²

Actual data on shipments was available for only four of the years for which projections were produced, the period 1972 through 1975 and only for total mineral aggregates in Ontario as a whole. Table 19, compares actual figures for the time period covered with each of the scenarios considered.

On the basis of these two criteria:

- *the original Proctor & Redfern projections (Scenario 1)* were considered unlikely as population forecasts are high, per capita income growth differs from the most recent government projections and demand estimates show an increasing variance from actual shipments.
- *The adjusted Proctor & Redfern model (Scenario 2)* was considered more likely as it employed new data and showed a declining variance from actual data.
- *Scenario 3* was dismissed due to the expected effect of compounding the pessimistic per capita growth rate.
- *Scenario 4* displays a good fit to actual figures for the period 1972-75 but was dismissed due to the expected effect of compounding the optimistic per capita income growth rate.
- *Scenario 5* was dismissed due to the extreme variance between projections and actual data and the expected effects of a relatively pessimistic per capita growth rate.
- *Scenario 6* was considered likely even though it shows a considerable variance from reported shipments. The rate of decline in this variance is acceptable and per capita income and population growth rates are the most expected.
- *Scenario 7* displays a reasonable fit with actual shipments but was dropped from further consideration due to the expected effects of its optimistic per capita income growth rate.

THE EXPECTED RANGE OF DEMAND FOR MINERAL AGGREGATES

The alternative scenarios developed in the foregoing indicate a range of possible future demand for mineral aggregates. Projections presented are based on limited information and a methodology not as yet fully developed. Within this context, however, three scenarios were considered acceptable indicators of possible future demand. The straight-line extrapolation generates minimum expected demand. Scenario 2, is considered representative of maximum demand. Finally, scenario 6 was judged representative of moderate expectations.

While minimum, moderate and maximum projections are presented for consideration, the most likely future demand for aggregate in Ontario should fall between minimum and moderate figures, tending towards the minimum. This conclusion is based on:

- a declining per capita consumption of mineral aggregates in recent years.
- the potential for technological substitution not incorporated in any of the foregoing scenarios.
- declining new highway construction, a major consumer of mineral aggregates.
- an increasing tendency towards slower growth in major Ontario municipalities.

²Considerable question exists regarding the quality of Statistics Canada data. It is, however, the only current source available.

TABLE 18

COMPARISON OF ALTERNATIVE DEMAND PROJECTIONS FOR MINERAL AGGREGATE ONTARIO,
1976-2001 SELECTED YEARS.

YEAR	Proctor & Redfern: Scenario 1	Adjusted Proctor & Redfern: Scenario 2	Cumulative Demand Estimates* in Tons Millions				Straight Line Extrapolation
			3	4	5	6	7
1976	383.7	301.4	278.7	325.7	260.9	282.2	305.0
1980	964.4	768.9	670.3	850.7	625.6	719.9	796.5
1985	1800.8	1461.8	1201.3	1699.6	1124.8	1368.7	1591.3
1990	2758.0	2305.3	1787.5	2837.5	1673.6	2158.4	2656.6
2001	5610.7	4842.1	3287.8	6856.9	3078.3	4533.6	6420.0
*Cumulative Reserve Depletion starts January 1, 1974 in all cases.							

TABLE 19 | COMPARISON OF ANNUAL DEMAND PROJECTIONS WITH REPORTED SHIPMENTS OF MINERAL AGGREGATES IN ONTARIO: 1972-1975

Year	Reported ² Shipments in Millions of Tons	Original Proctor & Redfern: Scenario 1	Adjusted Proctor & Redfern: Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7
% (-) Variance from Reported Shipments								
1972	107.47	+ 4.7%	(14.5%)	(16.2%)	(12.8%)	(21.5%)	(19.9%)	(18.4%)
1973	116.11	+ 1.2%	(18.7%)	(21.8%)	(15.4%)	(26.8%)	(23.8%)	(20.8%)
1974	114.17	+ 7.6%	(14.8%)	(19.6%)	(9.7%)	(24.8%)	(20.2%)	(15.5%)
1975	109.90	+16.7%	(8.6%)	(15.5%)	(1.4%)	(20.9%)	(14.5%)	(7.6%)

¹ Source: Statistics Canada Publication No.26-No.215 with revision by authors.

IMPACT OF REVISED DEMAND ON SUPPLY LIFE

Revised estimates of mineral aggregate demand in Central Ontario and Ontario as a whole imply an extension of the deadlines for supply exhaustion proposed by Proctor & Redfern. Tables 20 and 21, compare deadlines associated with the original consultants' report and revised estimates.

TABLE 20 | ESTIMATED DATE OF MINERAL AGGREGATE EXHAUSTION — CENTRAL ONTARIO.¹

	Sand & Gravel	Crushed Stone	Total
Estimated Available Reserve ²	1.9	1.1	3.0
Projected Date of Exhaustion	Year		
Proctor and Redfern	2,000	2,010	2,004
Maximum (Proctor and Redfern modified)	2,004	2,013	2,006
Moderate	2,007	2,029	2,010

¹ This table does not include minimum demand estimate for Central Ontario. Therefore, projected date of exhaustion not provided.

² Proctor and Redfern Central Ontario Study.

TABLE 21 | ESTIMATED EXHAUSTION OF MINERAL AGGREGATE FOR ONTARIO.¹

	Sand & Gravel	Crushed Stone ³	Total
Estimated Available Reserve ²	8.5	27.8	36.3
Approximate Year of Exhaustion by Source			
Proctor and Redfern	2,027	—	3,063
Adjusted Proctor and Redfern Maximum	2,037	—	—
Moderate	2,042	—	—
Minimum	2,056	—	3,093

¹ Based on estimated demand.

² Proctor and Redfern — Central Ontario Study, Southwestern, and Eastern Study totals. Does not include Northern Ontario.

³ The earliest time crushed stone would get exhausted is past year 4000. Therefore, actual year not included.

In the original Central Ontario region study, the consultants estimated an exhaustion of available sand and gravel reserves in Central Ontario by the turn of the century and crushed stone by the year 2010. Regional scenarios (maximum and moderate demand projections) indicate an extension of these deadlines by approximately 5 years for sand and gravel and 15 years for crushed stone.

With respect to Ontario as a whole, total supply estimates drawn from the consultants' three regional reports, southwest, east and central, indicate adequate available reserves of all aggregates through at least the year 3000, with crushed stone reserves available well past this point. Sand and gravel reserves appear adequate through the year 2035 under the most pessimistic assumptions for demand and availability.

PRICE AND THE DEMAND FOR AGGREGATE

The demand projections presented in the preceding sections have been developed without any consideration of the possible role of price in determining the demand for mineral aggregate. Mineral Aggregate demand was developed on the basis of per capita income and population growth, the resulting level of projected construction activity. The straight line extrapolation method also did not take into account consideration of possible price/demand relationships.

Basic economic theory considers price to be the prime mechanism for balancing the demand and supply of any commodity. Since price plays a role in demand determination, it should usually be considered in projecting demand. The extent of a price/demand relationship for mineral aggregate remains unresolved. Data required for a comprehensive examination of the question is not readily available. It is, however, essential that the possible presence of a price/demand relationship be at least examined, even if it cannot be quantitatively defined.

THE PROCTOR & REDFERN STUDIES

The Proctor & Redfern study for Central Ontario stated that the demand for mineral aggregate is price inelastic³. This statement means that variation in the price of mineral aggregate does not influence the quantity demanded. This assumption allowed the Proctor & Redfern study to ignore any possible impact of price changes on the projected aggregate demand. In their study of the southwestern region, however, Proctor & Redfern suggest that "relative" price effects have a considerable impact on the quantity of mineral aggregate used annually⁴.

The author implies that a cross elasticity exists for mineral aggregate. The demand for mineral aggregate is derived from bridges, dams and building construction, and road construction and maintenance. This derived demand is subject to variations in the price of those products consuming aggregate, i.e., houses and apartments. As such, the implication that a cross elasticity exists appears well founded. As the price of houses increases, consumers switch to apartments, townhouses and condominiums which require less aggregate per housing unit, therefore reducing the per capita consumption of aggregate. The impact of this circumstance on total aggregate demand is, however, limited given the minor portion of total construction expenditure accounted for by the residential category. Further, any reduction in the demand for aggregate under this and similar circumstances is not the direct result of a change in the price of aggregates.

THE PRICE / DEMAND RELATIONSHIP

What would be the direct impact of an increase in the price of mineral aggregate on demand? It would appear to depend upon a variety of factors, such as the availability of substitutes, possibility of changes in the proportions of inputs, or lastly the impact of a change in the price of aggregate on the price of the end product.

The availability of substitute materials would appear to be the prime factor. Aggregate is considered a strategic commodity for a number of construction activities. Substitutes are either not techni-

³Mineral Aggregate Study, Central Ontario Planning Region: page 4-5.

⁴Mineral Aggregate Study, Southwestern Region of Ontario. Vol. 1 (Draft), P. 4-6.

cally available, do not meet engineering standards, or have a delivered price much greater than the price of aggregates. These factors combine to severely constrain the ability of consumers to substitute for aggregates.

The second factor noted is the extent to which a particular activity's consumption of aggregate may be reduced without altering the quantity of the end product. A number of non-economic constraints to such a reduction are evident in building codes and engineering standards for buildings, roads and other construction such as dams or dykes.

The last factor considered was the impact on the price of the end product, and its final demand, of a change in the price of aggregate. The current proportion of total project costs accounted for by aggregates is minimal, and given the relative prices of other inputs and the ability of end product retailers to pass prices on, a reduction in end product demand as a direct result of an increase in the price of aggregate would not appear probable⁵.

CONCLUSION

On the basis of:

- the relatively high price and limited current technical availability of substitutes for mineral aggregates;
 - the constraints on reducing aggregate inputs without reducing output; and
 - the relatively low proportion of total costs accounted for by aggregates;
- the total demand for mineral aggregates would appear to be price inelastic in its current price range. The magnitude of price increases required to bring about any substantial reduction in demand appear beyond expectation given the current and near future supply situation.

SUGGESTIONS REGARDING FUTURE REVIEW OF MINERAL AGGREGATE DEMAND IN ONTARIO

In the foregoing review of Proctor & Redfern's demand projections and the development of alternatives, a number of critical points were made with respect to methodology. Any future attempt to project aggregate demand should

- Develop revised input co-efficients based on actual consumption figures of major consumers in each category.
- Develop control projections based on the activity forecasts of major consumers, i.e., the Ministry of Transportation and Communications, Metro Toronto, C.N. and C.P., construction associations.
- Conduct a general review of modelling techniques.

If a review of aggregate demand is considered necessary, it should be conducted no later than three years from completion of the current study.

⁵This circumstance does not consider the situation of public road building authorities operating on a fixed budget. Any increase in aggregate prices may reduce their ability to undertake particular projects.

Appendix 5

TRANSPORTATION STUDIES

FOR ALTERNATE SOURCES

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ACKNOWLEDGMENTS

The Ontario Mineral Aggregate Working Party wishes to gratefully acknowledge Canadian National Railway, Ontario Ministry of Transportation and Communications, and the late Dr. D. F. Hewitt for their assistance in the preparation of this appendix.

INTRODUCTION

The Ontario Mineral Aggregate Working Party has been examining various modes of transportation available for shipping mineral aggregates from the more distant sites in Ontario. The Working Party has asked various agencies, the Ministry of Transportation and Communications, Canadian National Railways, Canadian Pacific Railways and Metropolitan Toronto for specific information regarding the shipping of aggregate via rail, water and truck. As a result, a report has been received from the Ministry of Transportation and Communications entitled "Mineral Aggregates Transportation Study" (September, 1976) and a report received from Canadian National Railways entitled "Future Distribution of Ontario Aggregates; Rail Transportation" (September, 1976). In addition we have available a report compiled by the late Dr. D. F. Hewitt from the Ministry of Natural Resources entitled "Modes of Transportation and Aggregate Sources in Northern and Southwestern Ontario". Each of these reports in full are on file with the Ministry of Natural Resources Library. This paper will present an examination of each transport mode, drawing observations and conclusions from the three above mentioned reports.

Three aggregate sites were selected on the basis of potential reserves and their proximity to Toronto. These are: the limestone site in Prescott, Ontario; sand and gravel sites at Durham, Ontario (Grey County); and at Marathon, Ontario.

The Prescott site stone reserves are estimated to be approximately 8,885 million tons (Proctor and Redfern, Eastern Ontario Region) and somewhat isolated in the form of many ancient beach deposits. The reserves of sand and gravel are estimated to be only 36 million tons and appear to serve just the local users (Proctor and Redfern, Eastern Ontario Region, 1975).

The Durham site is known for its large reserves of sand and gravel which are estimated to be 4390 million tons. All the resources are located in the County of Grey about 30 miles south of Owen Sound. The Marathon site is located on the shore of Lake Superior. The sand and gravel reserves are estimated at 466 million tons with the deposits located on the shoreline and going inland for 3 miles (Gartner Lee Associates Ltd., 1974). The costs and implications of hauling from these three sites were identified for each appropriate mode by the authors of the above mentioned reports. Their summaries and findings follow.

TRUCK HAULAGE

Approximately 90 percent of the aggregate moved in the Central Ontario Region is moved by truck (Proctor and Redfern, Central Ontario Region, 1974, pg. 8-2). The excellent road system in this region makes truck haulage very versatile and economical. The trucking mode is analysed here as an alternative to the water mode for cost comparison.

The Prescott and Durham sites are both convenient for truck haulage while Marathon site because of its geographic location, was thought best suited for water or a combination of water and rail transport. We note that the cost estimates in the full report are based on present costs so no provision was made for future cost increases. Furthermore, the Ministry of Transportation and Communications in their report stress that the cost estimates are not detailed and should be taken only for cost comparison. Many assumptions also had to be made in order to determine the cost estimate. However, regardless of the assumptions made, it is thought that the cost estimates provide some in-

Appendix 5

dication of cost effectiveness of transportation from the various sites (Ministry of Transportation and Communications, pg. 1).

The Ministry of Transportation and Communications has compiled the most comprehensive report regarding truck haulage of aggregate to Toronto from Prescott and Durham. Their summary and findings follow.

PRESCOTT SITE

The estimates for trucking material from Prescott to the Toronto area are based on the following assumptions.

- maximum 50 ton truck payload capacity is considered.
- hauling distance is 210 miles.
- Highway 401 is taken as the hauling route with an average speed maintained between 50-55.
- hauling season of 210 days at 24 hours a day.

Each truck will be able to make about 620 return trips during the hauling season (Ministry of Transportation and Communications, pg. 15). This means that in each direction there could be from 950 to 1430 truck trips per day depending on whether 10 million or 15 million tons of aggregates are to be hauled annually (Ministry of Transportation and Communications, pg. 15). This would result in additional daily traffic in both directions in the range of 1900 to 2860 (Ministry of Transportation and Communications, pg. 15). This would more than double the existing daily truck traffic on Highway 401 in this area. The Ministry of Transportation and Communications in their report, estimate the cost of hauling material by truck from Prescott to Toronto to be around \$10.75 per ton. The summary of costs of hauling aggregates from Prescott as prepared by the Ministry of Transportation and Communications is shown in Figure 1. If assuming new equipment, the increase in trucking cost would be in the range from 17 to 22 cents on a per ton basis. This means that the total cost of transporting mineral aggregates by truck from Prescott to Toronto would range from \$10.92 to \$10.97 per ton. The following assumptions were made:

- 320 to 480 truck and trailer units are assumed, each having the net capacity of 48 tons;
- the purchase price of one unit ranges from \$30,000-\$35,000 (1975 bulk purchase price);
- economic life of 8 years and 12 per cent interest rate is assumed.

DURHAM SITE

It is assumed that of the full reserve in this area, 10 to 15 million tons will be produced during an 8 month productive season. To determine the cost of transporting this material by truck, the same assumptions are used before when reviewing the Prescott area. The only exceptions are the 110 mile hauling distance at an average speed of 45 to 50 miles per hour. Each truck will be able to make about 975 return trips during the hauling season. This means that in both directions there could be one truck trip every minute (Ministry of Transportation and Communications, pg. 17). The existing truck traffic could more than double as a result of hauling this material. The cost of hauling gravel from Durham to Toronto by truck is therefore estimated at \$5.75 per ton (Ministry of Transportation and Communications, pg. 17). The total cost to haul sand and gravel from this site to Toronto is summarized in Figure 2.

RAIL TRANSPORT

The report obviously most contributory to this mode of transport is the report compiled by the Canadian National Railway. The purpose of their report was to make a preliminary study of the potential methods and costs of distributing mineral aggregates in the future. This study does indicate that rail transportation of mineral aggregates at the volume levels proposed is possible using known technology. Although the transportation of ten to fifteen million annual tons of aggregate is considered a large movement, we feel that Canadian National Railway would have the capability to provide the necessary service if a fully integrated and controlled distribution system were to be designed

Figure 1

COST SUMMARY
TRUCKING MODE OF TRANSPORTATION

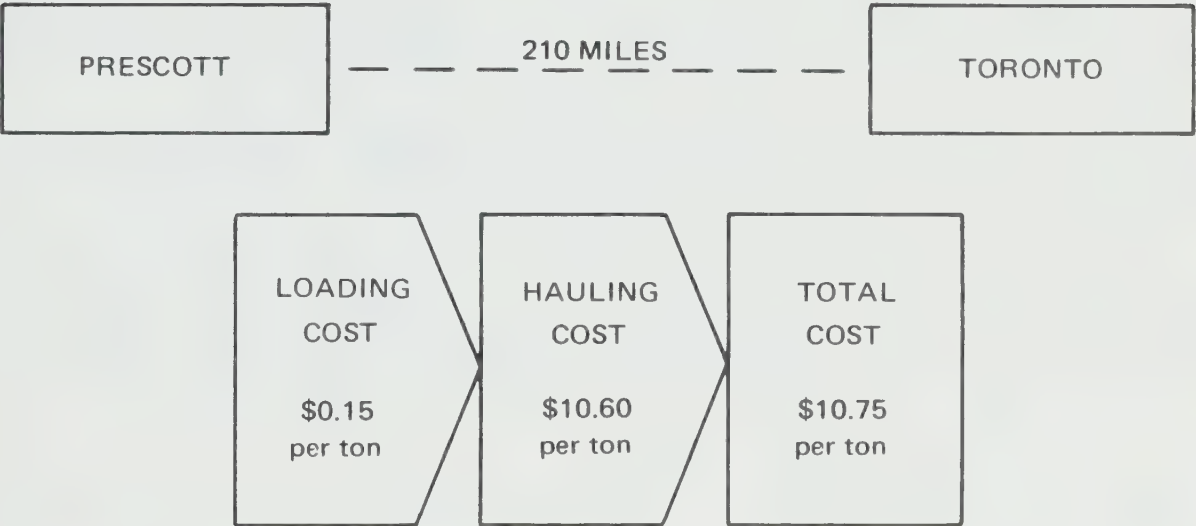


Figure 2

COST SUMMARY
TRUCKING MODE OF TRANSPORTATION



Appendix 5

and operated. Such a system would be considerably different than the present variety of methods used (Canadian National, pg. 1.).

Traditionally, Canadian National Railway has handled about 8 per cent of the mineral aggregates to the Toronto area (Canadian National, pg. 3). Competitive pricing and service has now shifted all but the larger movements to truck for direct delivery. Today the bulk of aggregate rail movements serve major aggregate distribution yards or large volume aggregate users. Current rail handling methods are designed to function around the existing facilities utilizing the existing rolling stock provided by the railway. Quick turnaround of equipment and direct delivery have been the saving factor in allowing the Canadian National Railway to maintain its position in certain aggregate markets thus far. However, it becomes more difficult for the railways to remain in this market, due to competitive pricing requirements and natural constraints. Major constraints include the nature and location of the market, the relatively low value of the commodity, short mileage hauls, traffic seasonality, improved road systems and higher allowable truck loadings.

Rates and conditions governing present Canadian National aggregate handling to Toronto are contained in the Appendix to their full report. Further reference on the market profile is also made in an earlier submission to the Ontario Mineral Aggregate Working Party from Canadian National entitled "Excerpts From an Earlier Aggregate Study; Toronto Market Area", (January, 1974).

For most efficient utilization of rail equipment terminal times at origin and destination should be minimal. This requires high capacity handling and transfer systems (Canadian National, pg. 7). Therefore, Canadian National Railway recommends that desirable features should include:—in motion loading and unloading, i.e., the engines pull the train through the facility at slow speeds to effect loading and unloading. No time is lost through breaking up the train, switching cars, etc.

- loading rates of 3000-5000 tons/hour. This would require silo or bin storing facilities with built-in systems to meter and scale the product into the car.
- unloading rates of 2000-10,000 tons/hour. A bottom dump hopper car can drop a 100 ton load into a pit or open trestle in 15 seconds.
- total time at loading and unloading terminals of less than 4 hours. As a result of these features, Canadian National Railways observes that the sophistication of these high capacity loading/unloading systems is manifested in a correspondingly high capital cost (Canadian National, pg. 8).

Canadian National Railways suggest that an 11 month rather than an 8 month distribution operation would provide both monetary and employment advantages to all levels of the distribution system. Technology used in other industries (such as iron ore) reduce the impact of the frozen product problem in rail transportation.

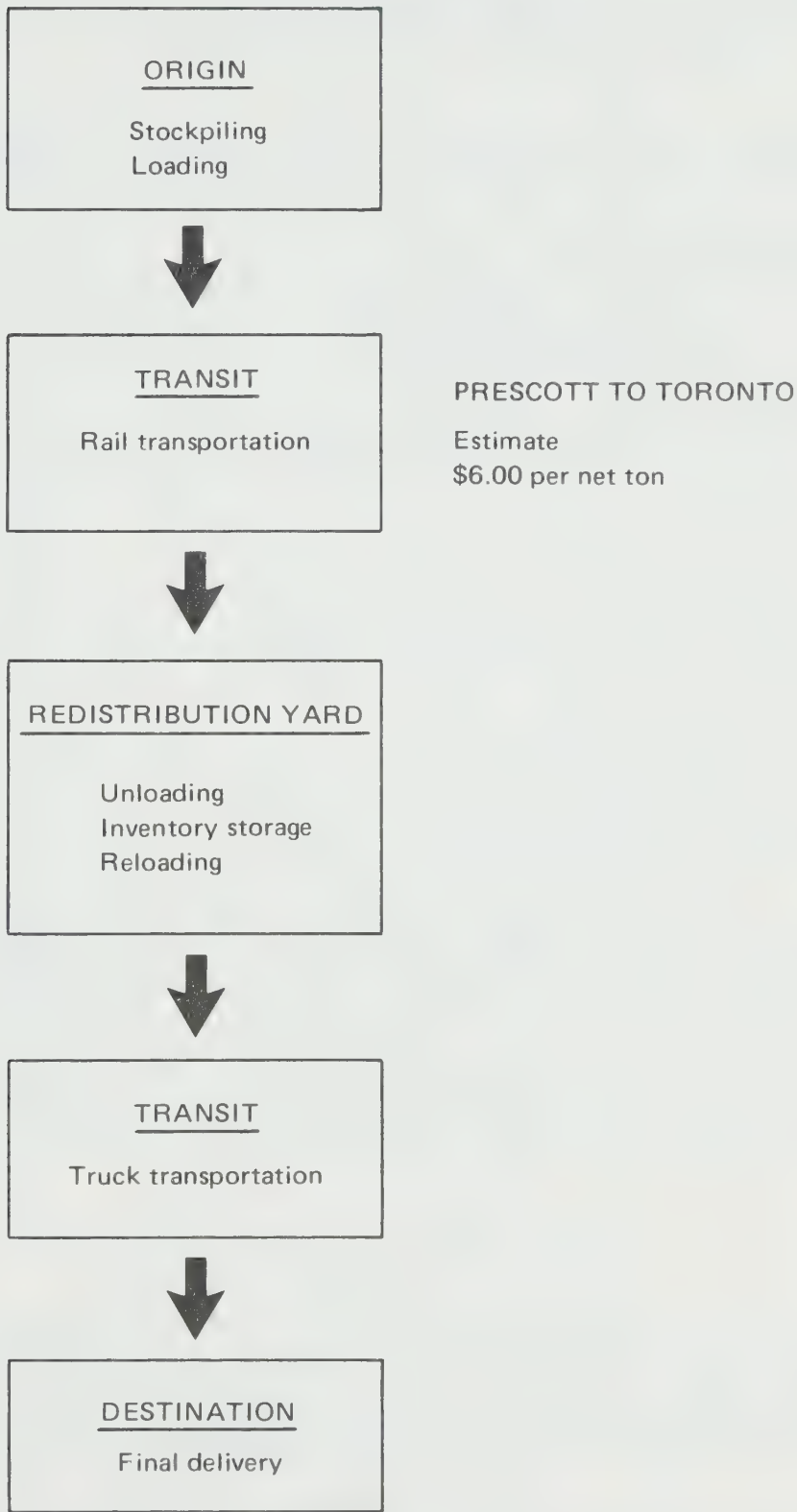
However, problems are anticipated by Canadian National regarding redistribution systems (Canadian National, pg. 12). Canadian National Railway reports that there will be difficulties in finding sites for new redistribution yards within Metropolitan Toronto that will meet all the criteria of market area, size, proximity to road and rail networks and environmental issues (Canadian National, pg. 12). Canadian National further states "if it is necessary to locate outside Metropolitan Toronto, it would be desirable to attract industrial users, such as paving plants, ready-mix plants, etc., to locate at the distribution yards so multiple truck deliveries of the same aggregate can be avoided" (Canadian National, pg. 12).

In addition, rolling stock which includes cars and motive power would have to be newly acquired for the operation envisioned. The investment can be financed by either the railway, industry or reports that at current 1976 dollar levels the purchase cost of a 50 car train-set is in the range of \$3 million while an 80 car train-set is about \$5 million (Canadian National, pg. 12). The quantity of rolling stock required to handle a given volume depends on the design and efficiency of the transportation system (the factors discussed above). A reasonable cycling estimate for a movement from Durham to Toronto for example would be one round trip per train-set per shipping day. Prescott could be about 1.5 days per round trip per train-set (Canadian National, pg. 13). Therefore at the 15 million annual ton level the investment required in rolling stock would be in the order of \$50 million for Durham or \$75 million for Prescott (Canadian National, pg. 13).

In addition to the new investment estimates indicated above, there still remains the transportation costs for moving the product and returning empty trains for reloading. Canadian National suggests that using some of their present unit train and train lot movement as a guide, a reasonable transportation cost estimate would be 1.5 cents to 2.5 cents per ton mile (Canadian National, pg. 13). Using 100 ton carloads an estimate for Durham at 100 miles is \$150 to \$250 per carload, while Prescott at 200 miles is \$300 to \$500 per carload (Canadian National, pg. 13). There would be some tendency for the cost to approach the lower end of the range as mileage increases. Table 1 summarizes

Figure 3

RAIL MODE OF TRANSPORTATION



Appendix 5

cost estimates as advanced by Canadian National Railway. Figure 3 identifies various elements involved in the distribution of aggregates using rail transportation.

- Canadian National Railway therefore concludes with the following two main observations:
- the distances proposed encourage economic train movements while the volumes suggest an ability to properly utilize advanced handling equipment and systems (Canadian National, pg. 5).
 - the least cost (per ton of aggregate) distribution system will require significant capital investments by both industry and railway. To support the fixed investments, a long term commitment (about 15 years) must be made by all parties (Canadian National, pg. 6).

TABLE 1 | COST ESTIMATE SUMMARY, RAIL TRANSPORTATION

-
1. Rail link from existing rail line to industry site:
 - \$250,000 per mile where good surface
 - double or triple if many natural geographical barriers
 - plus the cost of land and traffic control systems.
 2. Upgrading present rail plant where necessary:
 - \$150,000 to \$200,000 per mile or
 - more if major bridge or road bed reconstruction
 - above excludes the upgrading of traffic control systems.
 3. Traffic control systems:
 - unknown until detailed design stage.
 4. Rolling stock:
 - \$3 million for 50 car train-set
 - \$5 million for 80 car train-set
 - maybe \$50 million to handle 15 million tons on 1 day train cycle
 5. Transportation Cost:
 - 1½ cents to 2½ cents per ton mile or
 - \$150 to \$250 per carload for 100 mile movement.
 6. Additional New Investments:
 - by industry for loading/unloading equipment and rail support
 - by industry for truck delivery capability.
-

It is evident that the receiving capacity of depots in the Toronto area is limited. Dr. Hewitt, in a survey included in his report, shows that only seven aggregate receiving depots in the Toronto area are capable of handling bulk trains (Hewitt: Modes of Transportation, pg. 2). Hewitt concludes that it would be necessary to establish more large stone receiving depots capable of handling bulk trains.

In addition, Dr. Hewitt has included valuable information on aggregate sources in remote areas near rail lines. These are shown in Appendix 2A. The result was that of 17 deposits found and examined, only 3 presented good prospects for rail haulage. (Wallace Area, Skead Area and Gillies Depot Area.) These three deposits are large however, totalling approximately one billion tons.

WATER TRANSPORTATION

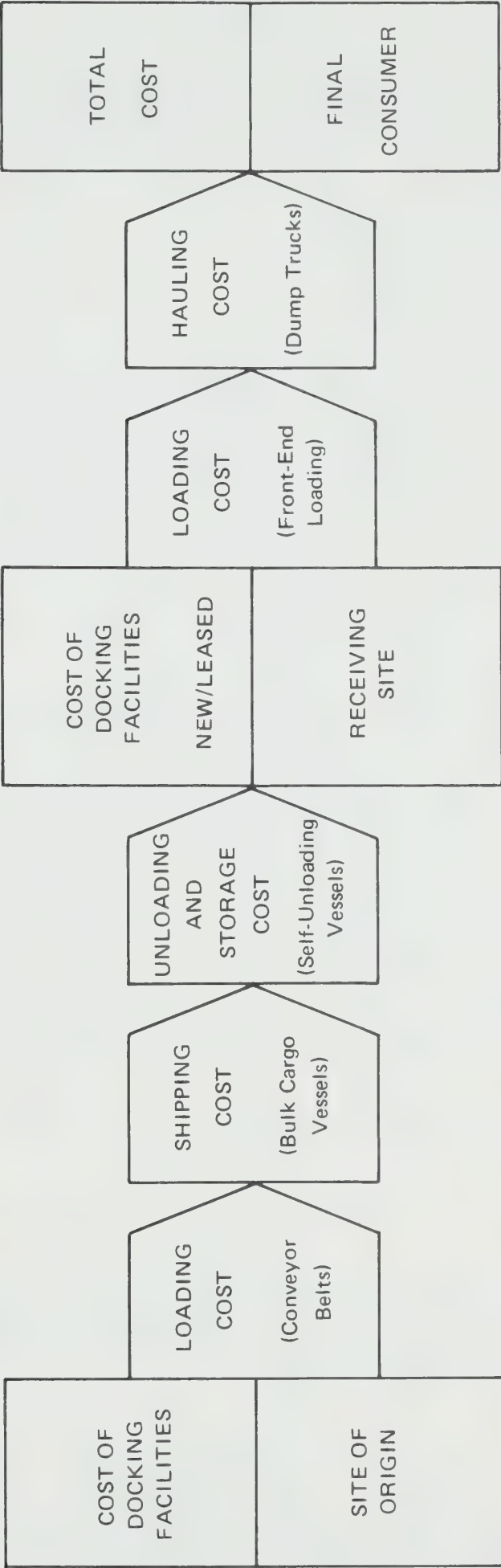
In 1974, the Ontario Division of Mines commissioned a study of sand and gravel resources along the shores of Lakes Huron and Superior (Gartner Lee Associates Ltd., 1974). An area was examined by air photo interpretation and four sites were field checked the following summer. Further field checking is continuing. Appendix 2B as prepared by Dr. Hewitt outlines seven of the most favourable sites. The four sites field checked were Marathon, Pukaskwa River, North Little Rapids and Hawkeye Lake.

Two areas, Pukaskwa River and North Little River are unsuitable aggregate sites due to poor aggregate quality. Hawkeye Lake is still questionable but Marathon has proven to be quite favourable. The Marathon site as studied by the Ministry of Transportation and Communications will be reviewed here with respect to the water mode of transportation. Following this, a presentation of costs involved in water transportation from Prescott will also be discussed. The following information is all drawn from the Ministry of Transportation and Communications in their report.

Figure 4

COST FACTORS

WATER MODE OF TRANSPORTATION



REDISTRIBUTION

RECEIVING SITE

SHIPPING

SITE OF ORIGIN

PRESCOTT SITE

In order to determine the overall cost of transporting this material into the Toronto area, it is necessary to determine in addition to the actual shipping cost, the loading and unloading costs and capital expenditure for new docking facilities at both the origin and destination. The breakdown of cost factors is shown in Figure 4. In addition the following assumptions have been made:

Navigation season: 245 days

Minimum draft: 26 feet

Minimum vessel capacity: 27,000 tons

Volume of shipment: 10 to 15 million tons

Minimum receiving docks: 3

Maximum truck capacity: 50 tons

Minimum truck capacity: 20 tons

Maximum redistribution distance: 10 miles radius

The Ministry of Transportation and Communications has reviewed in their full report an assessment of existing docking facilities at the point of origin. They conclude that it would be most economical and efficient to construct new docking facilities at the quarry location. The present cost of such construction would be approximately \$3 million. The best procedure they suggest would be to open a quarry operation as close as possible to the shoreline where there is sufficient draft in order to enable the larger seaway vessels to use the new docking facilities.

The cost of loading the vessel is estimated to be in the range from 10 cents to 15 cents per ton. This cost includes labour, material and maintenance costs of the loading system. The actual shipping cost, estimated at \$1.48 per ton assumes:

- existing vessels of 27,000 ton maximum capacity;
- the vessel to be used on a shuttle basis;
- working time of 7 days/week, 24 hours/day.

Four vessels of the said capacity would be required to transport 10 million tons of aggregate annually or 6 vessels if 15 million tons are considered.

From all the 6 ports in the receiving Toronto area, 3 are able to handle larger volumes of aggregates. These sites would be the minimum number of docking facilities required to redistribute the aggregate brought into the area from Prescott. If a volume of 10 million tons is assumed, then each of the 3 docks will have to handle a little more than 3 million tons. Overall cost of renting the docking facilities is about 14 cents per ton. The redistribution of aggregates stockpiled at the docks require further shipment by trucks. The loading cost onto trucks is 12 cents to 15 cents per ton, while truck hauling costs range between 60 cents to \$1.08. 714 truck trips daily would have to be made in each direction, or every minute a truck will be moving out from the docking centre. This represents a large truck traffic in the area. The overall cost summary of shipping by water from Prescott to Toronto is \$2.86-\$3.56 as illustrated in Figure 5. If new equipment is assumed, the increase in cost on a per ton basis ranges from 36 cents to 81 cents. The total cost of transporting mineral aggregates from Prescott to Toronto by new vessels will be in the range from \$3.22 to \$4.37. The following assumptions are made:

- 4 to 6 vessels are assumed at an individual purchase price of \$40 to \$50 million,
- economic life of 20 years and 12 per cent interest rate.

MARATHON SITE

It is assumed that 10 to 15 million tons will be produced during the seven month season. Two alternatives are considered in transporting this material into the Toronto area. Either the material can be brought to Toronto by cargo vessels or brought to a port in Georgian Bay, where it is transferred to rail and moved by this mode to Toronto.

WATER MODE

There are two port facilities in the Marathon area; however, both are of limited use. Both ports, one at Heron Bay, the other at Marathon, handle predominately coal, petrol and forest products with shallow draft, thus limiting the use of larger vessels. New docking facilities would have to be

Figure 5

COST SUMMARY

WATER MODE OF TRANSPORTATION

PRESCOTT-TORONTO

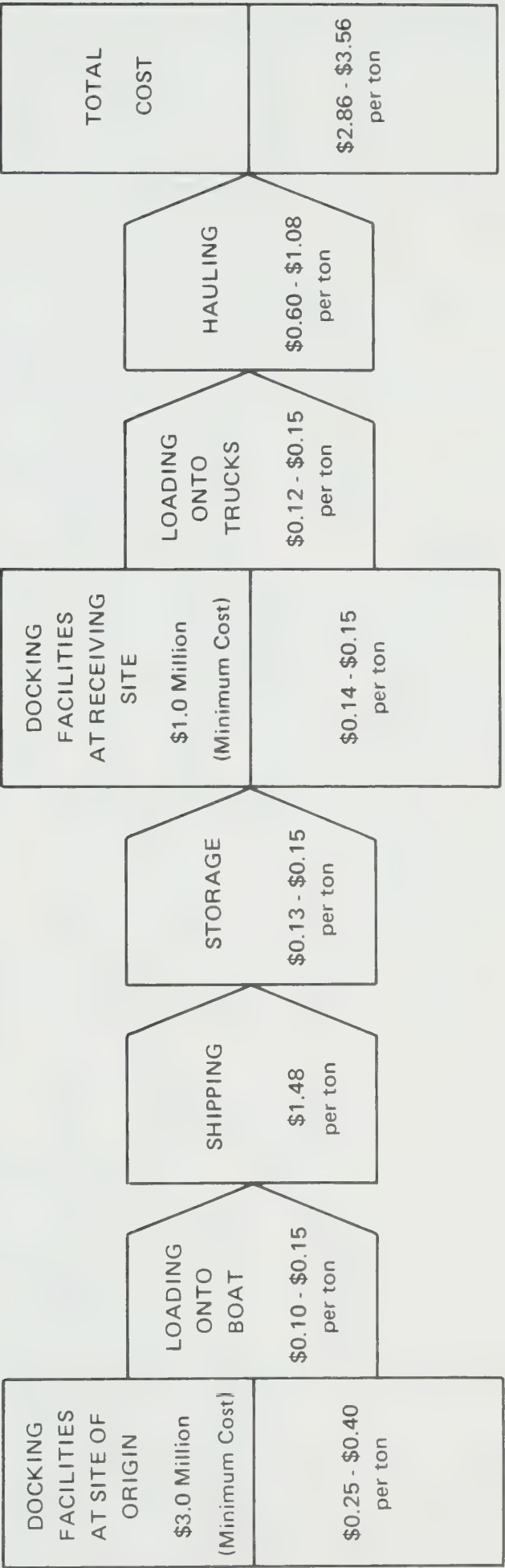


Figure 6

COST SUMMARY
WATER MODE OF TRANSPORTATION
MARATHON - TORONTO

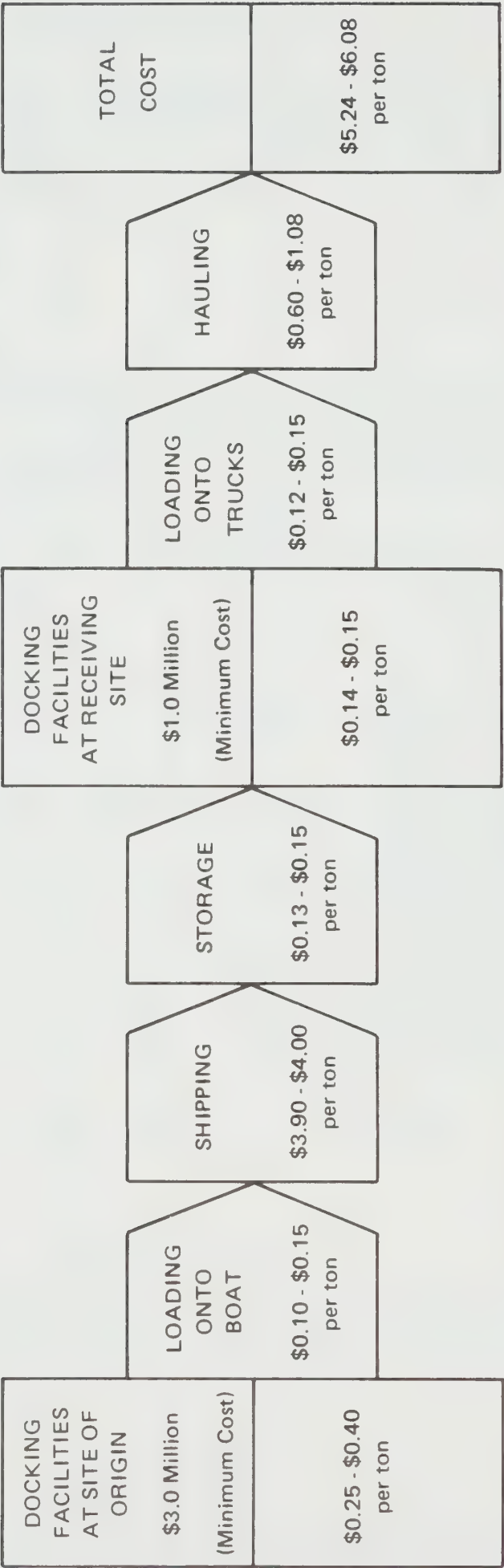
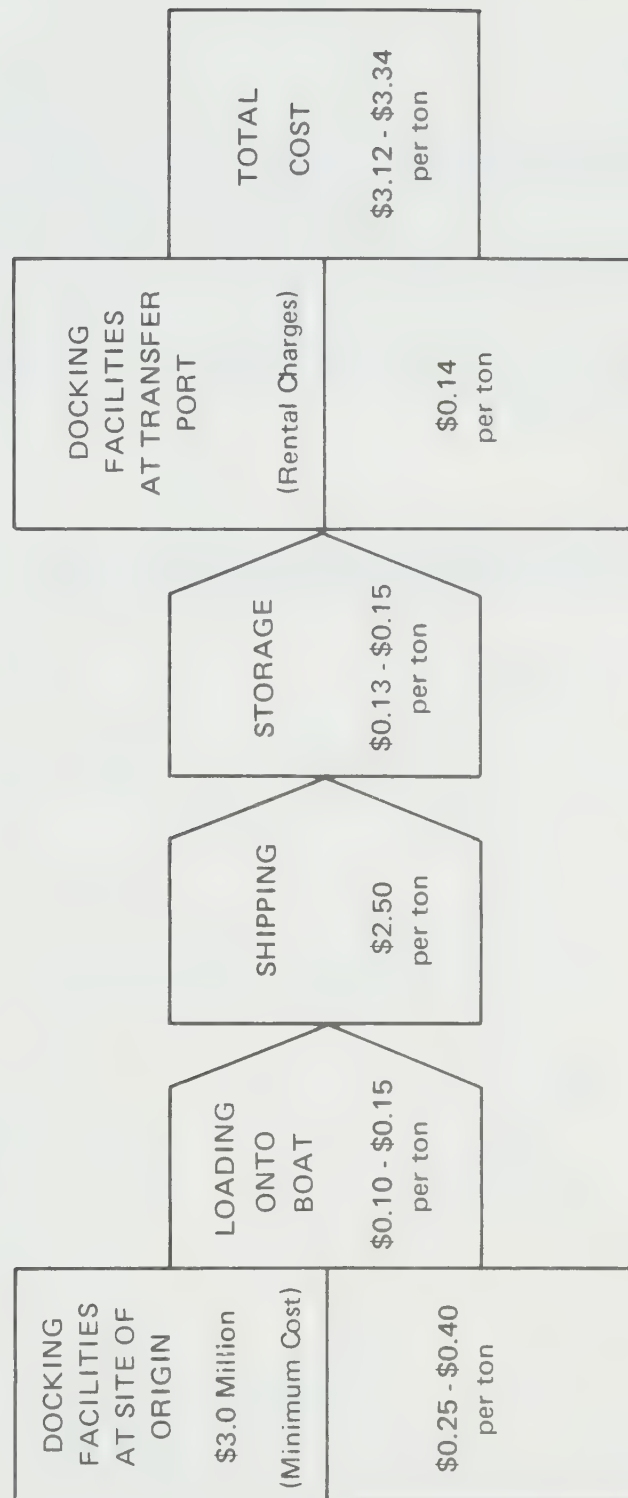


Figure 7

COST SUMMARY

WATER/RAIL MODE OF TRANSPORTATION*

MARATHON - MIDLAND



*Water mode of transportation is analyzed only.

Appendix 5

constructed at the site of production, as well as ensuring a minimum of 3 receiving docks. Each vessel could make 31 return trips during the 214 day navigation season. Ministry of Transportation and Communications reports that 12 vessels of 27,000 ton capacity would be required to transport 10 million tons of aggregate per season or 18 vessels if 15 million ton volume is assumed. The shipping cost of transporting material from Marathon to Toronto by water would range from \$5.24 to \$6.08 per ton. The cost required to transport mineral aggregate from Marathon to Toronto by water is shown in Figure 6.

WATER/RAIL COMBINATION

Here the material is brought by 27,000 ton capacity vessels to a port on Georgian Bay and then railed to Toronto. The existing ports at Collingwood, Midland and Owen Sound were assessed for accommodating aggregate handling facilities. Midland is the only port capable of handling the transfer. The total cost of moving the material to Midland is summarized by the Ministry of Transportation and Communications in Figure 7. The cost of bringing the material to Toronto by rail has not been added.

An objective of this Appendix is to illustrate the overall cost comparison between modes. Table 2 summarizes the cost of each mode for a given origin and destination and clearly points out the most economical transport mode.

TABLE 2 | COST COMPARISON FROM VARIOUS TRANSPORT MODES, PRESCOTT — TORONTO (210 MILES).

1. Trucking Mode	Total Cost per ton
A. Existing equipment	\$10.75
B. New equipment	\$10.92 to \$10.97
2. Rail Mode	
A. Existing equipment	\$6.00
3. Water Mode	
A. Existing equipment	\$2.86 to \$3.56
B. New equipment	\$3.22 to \$4.37

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APPENDIX 5A

SOURCE AREAS OF AGGREGATES NEAR RAIL TRANSPORTATION

REQUIREMENTS: Proven reserves of at least 15,000,000 tons of sand and gravel within 10 miles of rail.

Seventeen deposits were found and examined as far north as Kirkland Lake and as far west as Sudbury.

DEPOSIT 1, Bancroft Area

Area: 1,500 acres

Type: Sandy outwash

Depth: 10 feet

Possible Tonnage: 35,000,000 tons

Assessment: Not a good prospect as it is shallow and sandy. Extensively built over.

DEPOSIT 2, Wallace Area ¹

Area: 2,000 acres

Type: Esker and outwash complex

Depth: up to 40 feet

Possible Tonnage: 50,000,000 tons

Assessment: The esker is a good prospect for gravel.

DEPOSIT 3, Killaloe Area

Area: 1,000 acres

Type: Kame and outwash complex

Depth: To 15 feet

Possible Tonnage: 100,000,000 tons

Assessment: Not a good prospect due to sandy and patchy character.

DEPOSIT 4, Traverse Lake Area, Algonquin Park

Area: 8,000 acres

Type: Outwash deposit

Depth: 0-30 feet

Possible Tonnage: 200,000,000 tons

Assessment: Unavailable due to location in park.

DEPOSIT 5, Deux Rivieres Area

Area: 800 acres

Type: Esker, kame and outwash complex

Depth: 0-75 feet

Possible Tonnage: 100,000,000 tons

Assessment: Too fine for aggregate.

DEPOSIT 6, Rutherglen Area

Area: 50 acres

Type: Kame moraine

Depth: 0-60 feet

Possible Tonnage: 4,000,000 tons

Assessment: Too small for rail haulage.

¹Good prospect for rail haulage.

Appendix 5

DEPOSIT 7, Nosbonsing Area

Area: 50 acres

Type: Esker

Depth: Up to 60 feet

Possible Tonnage: 4,000,000 tons

Assessment: Too small for rail haulage.

DEPOSIT 8, Fossmill Area ²

Area: 150 acres

Type: Esker and outwash

Depth: Up to 60 feet

Possible Tonnage: 9,000,000 tons

Assessment: A good prospect, but tonnage is small.

DEPOSIT 9, South River Area ²

Area: 400 acres

Type: Kame moraine

Depth: 0-30 feet

Possible Tonnage: 10,000,000 tons

Assessment: Good prospect for small tonnage.

DEPOSIT 10, Burk's Falls Area

Area: 600 acres

Type: Kame moraine

Depth: 0-40 feet

Possible Tonnage: 14,000,000 tons

Assessment: Irregular and spotty, not a good prospect.

DEPOSIT 11, Kinmount Area

Area: 600 acres

Type: Kame and outwash

Depth: 0-30 feet

Possible Tonnage: 5,000,000 tons

Assessment: Too small and patchy with much fine sand.

DEPOSIT 12, Irondale Area

Area: 200 acres

Type: Kame and outwash

Depth: 0-15 feet

Possible Tonnage: 3,000,000 tons

Assessment: Deposit too small and patchy.

DEPOSIT 13, Coe Hill Area

Area: 400 acres

Type: Kame and outwash

Depth: 0-15 feet

Possible Tonnage: 6,000,000 tons

Assessment: Deposit thin and patchy. Rail service removed.

DEPOSIT 14, Skead Area ¹

Area: 3,600 acres

Type: Esker-outwash complex

Depth: 0-150 feet

Possible Tonnage: 260,000,000 tons

Assessment: Good prospect except for built-up areas.

DEPOSIT 15, Capreol Area

Area: 500 acres

Type: Delta and outwash

Depth: 0-25 feet

Possible Tonnage: 24,000,000 tons

Assessment: Deposit shallow and limited by settlement. Good for local needs.

DEPOSIT 16, North Bay Area

Area: 1,500 acres

Type: Sandy outwash

²Small prospect for rail haulage.

Depth: 0-40 feet
Possible Tonnage: 700,000,000 tons
Assessment: Not a good prospect, sand is too fine and deposits are patchy. The area lacks good gravel.

DEPOSIT 17, Gillies Depot Area ¹
Area: 2,400 acres
Type: Esker-outwash complex
Depth: 0-40 feet
Possible Tonnage: 700,000,000 tons
Assessment: Good prospect for rail haulage.

APPENDIX 5B

POSSIBLE GRANULAR RESOURCES
NORTH SHORES OF LAKES SUPERIOR AND HURON

C-6 ¹	Hawkeye Lake	115,000,000 T
E-8	Cavers-Gravel River	317,000,000 T
G-11	Terrace Bay Schreiber	235,000,000 T
I-13	Steel River	244,000,000 T
J-16	Plysalis Lake	116,000,000 T
K-19	Marathon	466,000,000 T
R-35	Pukaskwa River	441,000,000 T
T-38	Magpie River	110,000,000 T
T-40	Wawa	158,000,000 T
U-43	Perry	182,000,000 T
U-44	Sponge Creek	106,000,000 T
W-47	Montreal Falls	151,000,000 T
W-49	Montreal River	211,000,000 T
X-52	Batchawana River	113,000,000 T
Z-56	Tunnel Lake	225,000,000 T
Z-57	Rose-Bridgland Townships	113,000,000 T
Z-58	North Little Rapids	500,000,000 T
	17 Deposits totalling	3,803,000,000 T

¹ Deposit identification number from Gartner Lee Assoc. Ltd. report.

Appendix 6

REGIONAL AND COUNTY PLANNING IN ONTARIO

Prepared by

G. K. Bain

Director, Local Planning Policy Branch
Ministry of Housing

CONTENTS

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REGIONAL AND COUNTY PLANNING IN ONTARIO

The Working Party is of the opinion that if adequate planning for aggregate resource extraction is to be carried out, it must be done at a level which allows a fairly large geographic unit to be encompassed. In Ontario, this is at the regional government or county government level. All regional governments in Ontario have fully operating planning departments with professional planning staff. This is not true of county governments, although in recent years many counties have established at least small planning departments.

Specifically, at the present time in Southern Ontario there are 12 regional governments in existence. In addition, there are 13 counties that now have established planning departments, each of which has at least one professional staff person hired on a full-time basis. This means that approximately ½ of the southern part of the province is covered by either regional governments or county governments with the latter each having at least a small planning department.

Fortunately, virtually all of the areas in Ontario where the large known deposits of aggregates occur are covered by regional governments or counties with planning departments (see Map A, back pocket). Regional governments exist at the western end of Lake Ontario, extending from roughly Newcastle on the east to Niagara Falls on the United States border. Moreover, the Ottawa area is covered by the Ottawa-Carleton regional government and the aggregate deposits in the general area around Kitchener come under the jurisdiction of the Regional Municipality of Waterloo.

The regional governments all have either completed the preparation of an official plan or are well advanced in this process. The plan for Ottawa-Carleton has been approved in part by the Ministry of Housing and the balance is now before the Ontario Municipal Board for approval. Other plans currently under consideration for approval by the Minister include those for the regions of Niagara, Waterloo, Durham and Muskoka. In addition, the plans for Metropolitan Toronto, Sudbury, Hamilton-Wentworth and York are all in the final stages of completion and should be ready for submission for approval sometime in 1977.

Unfortunately, most of these plans do not now contain what could be considered as adequate policies on the extraction of aggregate. This includes both the lack of designation on maps of areas

where the aggregate is known to exist as well as the absence of any indication in the text of the policy that will be followed by council in allowing mining to occur.

As regards counties with planning departments, it may be said that the counties of Huron and Hastings have an approved official plan as does the northern half of the county of Bruce. In addition, the counties of Grey and Prince Edward currently have plans before the Minister of Housing for approval.

These county plans also are characterized by a lack of policies relating to the aggregate industry.

One of the main reasons, if not the main reason, for regional and county plans having little or no policy on aggregate extraction is that until recently there was insufficient information available on the location of potential aggregate deposits. Thus, the only way each council could have determined where deposits were located within the boundaries of their government area would have been to commission field studies, at considerable expense, in order to obtain the necessary geological data.

This situation has changed markedly in the past one or two years, however, because of a greatly accelerated program of mapping of industrial minerals by the Division of Mines of the Ministry of Natural Resources. Mapping at scales adequate for planning purposes recently has been completed for eastern Ontario, and is now available to municipalities, and mapping for central and western Ontario will be available within the next year.

The availability of this geological information will provide the basis for the various regional and county governments either to include policies on extraction in plans that are currently under preparation or will permit amendments to be made to existing plans to add a chapter on aggregate production.

In addition to regional and county governments, mention must be made of the Niagara Escarpment Commission. This body was established in 1973 by the Government of the Province of Ontario and has jurisdiction over the extensive area straddling the Niagara Escarpment from Niagara Falls on the south to Tobermory on the north. The Commission has been charged with the responsibility of preparing a plan on behalf of the Government of Ontario, which, when approved, will take precedence over any existing plans or by-laws. This plan certainly will contain policies on aggregate extraction and will be made public sometime during 1977.

As a result of existing planning structure as described above, and the activity that has gone on, and is currently going on, in the production of plans at the regional and county level, the Committee is of the opinion that within three years it is reasonable to expect that all of the areas of southern Ontario with significant known aggregate deposits could be covered by official plan policies relating to aggregate extraction.

REGIONAL OR COUNTY OFFICIAL PLAN STATUS
-- OCTOBER 1976

Regional Municipality or restructured County	Date Established	Planning Organization	Progress to Date
Metro Toronto	Jan. '54	2 tier	Draft completed July 1976
Ottawa-Carleton	Jan. '69	2 tier	Part approved Sept.'76. Part to OMB Sept.'76 including entire aggregates section.
Niagara	Jan. '70	2 tier	2nd revision before Minister
York	Jan. '71	2 tier	Various interim policies and strategy papers adopted.
District Muskoka	Jan. '71	single for O.P. since 1975	Interim policies 1973 draft completed for comment.

Appendix 6

Waterloo	Jan. '73	2 tier	Before Minister and nearing approval.
Peel	Oct. '73	2 tier	2 or 3 area plans adopted.
Halton	Oct. '73	2 tier	Interim policies 1974. Other interim reports published.
Hamilton-Wentworth	Oct. '73	2 tier	Draft pending.
Durham	Oct. '73	single independent with areas delegated	Before Minister August '76 now circulating, objections received to aggregate policies
Haldimand-Norfolk	Apr. '74	single planning area	Interim before Minister March '76.
Oxford	Jan. '75	single planning area	Initial stages.

COUNTY SCALE PLANNING PROGRAMMES

Brant-Director of Planning.

Bruce-Two planning boards covering county. 2 staff.

Grey-Director of Planning.

Hastings-Director of Planning, approved O.P. covering most of county.

Huron-Full planning staff, county planning board approved O.P.

Lambton-Director of Planning, no county planning board.

Lennox and Addington-County planning board, no staff.

Manitoulin-County planning board, no staff, Ministry grant for O.P.

Perth-No county planning board, director of planning.

Prince Edward-County planning board, director of planning.

Victoria-County planning board, director of planning, Ministry grant for O.P.

Wellington-Director of Planning.

Stormont-Planning board, no staff.

Appendix 7

COSTS OF REGIONAL OR COUNTY CONTROL

Prepared by

J. A. Young

Chairman, Regional Municipality of Waterloo

COST ESTIMATE OF REGIONAL REQUIREMENTS FOR LICENSING SAND AND GRAVEL PITS

FUNCTION

- to licence new pits
- to regularly inspect operations and rehabilitation
- to annually review licences
- to advise applicants and area municipalities

STAFF

1. One full-time inspector. Job requirements equivalent to an engineering technician. Assignment to work in the field and to be knowledgeable of sand and gravel operations.
2. One full-time Senior Planner. Job requirement equivalent to senior planner in Planning and Development Department. Position should be knowledgeable of environmental planning with emphasis on geology and geography. Assignment to interpret provincial and regional policy, to advise applicants on site plans and rehabilitation plans, to write reports for Regional Committee and Council, to supervise inspector, to advise Area Municipalities.
3. Director. To be responsible for licensing operation and to advise Commissioner on recommendations for Council action. Estimated 5 per cent of an existing Director's time devoted to this assignment.
4. Secretarial service is shared with existing clerical staff.

CAPITAL REQUIREMENTS

Office space for two people. Two desks and one drafting table as well as vertical filing system.

FUNDING

a) Salaries:

Inspector \$12,000 p.a.

Senior Planner 20,000 p.a.

Director (5 percent) & Secretarial 2,000 p.a.

Total 34,000 p.a.

b) Equipment: \$2,000.

c) Operating: \$5,000 (car allowances, overall equipment, telephone, printing and reproduction, forms, rental of space, etc.).

TOTAL YEARLY COST—\$39,000 or \$40,000.

Appendix 8

VICTORIA COUNTY

DRAFT AGREEMENTS

WITH PIT OWNERS

Prepared by

C. C. Hoag

County Engineer

Copy of letter from C. C. Hoag to G. A. Jewett, enclosing copies of agreements.

July 13, 1976

Mr. George Jewett
Chairman
Ontario Mineral Aggregate Working Party
Queens Park
Toronto, Ontario

Dear George:

Please find enclosed copies of the two types of agreements evolved by the County of Victoria in an effort to assure the County of an available gravel supply (principally for maintenance) subsequent to this area being designated under the Pits and Quarries Act. We were told locally (rightly or wrongly) that Wayside Pits would not be permitted for maintenance purposes. Acceptance of this "edict" necessitated the County seeking an alternative approach to their planned maintenance program and resulted in the development of the enclosed agreements.

The County advertised their intent of entering into "long term" gravel supply agreements inclusive of County input into preparation of plans and licence applications. The advertisement included a "coupon" to be mailed in to the County Engineering Department by any gravel property owner who was interested in exploring the possibility of negotiating an agreement with the County.

The replies were plotted on a map of the County Road system and the County then selected locations relative to road mileage and haul distances which were potentially advantageous to the County. Gravel quality was then checked by the County in each location that might be potentially advantageous.

Acceptable quality locations were then discussed with the owners relative to negotiating a price per yard. On the basis of price and location relative to haulage within the road system, the pits on which the County wished to sign agreements were selected.

The enclosed agreement forms cover two types of agreements:-

1. Draft Agreement No. 1:-

Application and cost of same in name of Owner.

2. Draft Agreement No. 2:-

Appendix 8

Application in the name of the County. County cost re licensing to be recovered in accordance with terms of the agreement.

If there are any questions relative to the above please do not hesitate to contact me.

Sincerely,

Signed by C. C. Hoag, P. Eng.

County Engineer

DRAFT AGREEMENT NO. 1

On the cover of the agreement

DATED:

THE CORPORATION OF THE COUNTY
OF VICTORIA

and....

AGREEMENT

FULTON, McQUARRIE, HILL, WALDEN

SWAIN & CHESTER

Barristers & Solicitors

14 Lindsay Street North

LINDSAY ONTARIO

The text of the agreement

THIS AGREEMENT made this....day of...., 19....

BETWEEN:

THE CORPORATION OF THE COUNTY OF VICTORIA

hereinafter called the County

and....

hereinafter called the Owner

Subject to the conditions hereinafter provided the Parties hereto DO HEREBY AGREE AS FOLLOWS:

1. The County will purchase from the Owner, certain gravel in the Owner's lands, which lands are herein described in Schedule A to this Agreement.

2. Upon removal of the gravel whether for crushing purposes or for pit run use, the County will pay the Owner the sum of¢ per cubic yard in the first year of the Agreement. In the second and each subsequent year the County will pay the Owner the same price per cubic yard of gravel removed (or stockpiled) with such increase or decrease in the price as may be determined by the percentage increase or decrease in the rate of inflation (or deflation) as reported by Statistics Canada on the 1st day of May in each year, for the year previous.

3. Payment to the Owner shall be made each thirty days and shall be in accordance with records to be kept by the County Engineering staff, copies of which shall be delivered to the Owner every thirty days together with the County's settlement cheque for the same accounting period.

4. This Agreement shall continue in force for a period of....years, with right of renewal for a further period of years upon such terms and conditions as the Parties may agree.

5. If circumstances should be such that the County does not require gravel from the Owner's premises as described herein, in any year or years, this Agreement shall nevertheless continue in force for its full term and for the purpose of computing the term of the Agreement, time shall run continuously for....years, whether or not gravel is taken in any year.

6. The Owner agrees that he (she) (it) will, forthwith upon the execution of this Agreement, make application to the Minister for a pit licence in accordance with the provisions of The Pits and Quarries Control Act, 1971 and the regulations thereunder.

7. In the event of any dispute between the Parties under this Agreement which cannot be satis-

factorily resolved by mutual agreement, the same, at the instance of either party, may be referred to a Board of Arbitration comprising three persons, one to be chosen by the County, one by the Owner and the third the chairman of the Board, to be the presiding County Court Judge of the County of Victoria, as persona designata, and a decision of the majority of the Board upon any issue shall be the decision of the Board.

8. In all other respects this Agreement shall be subject to the provisions of The Pits and Quarries Control Act, 1971 and all amendments thereto and all regulations passed thereunder.

9. The Agreement herein shall be binding upon the Parties hereto during the term expressed in the Agreement and upon the heirs, executors, administrators and assigns of the Owner.

WITNESS the Corporate Seal of the Corporation of the County of Victoria duly attested by the proper officers in that behalf.

THE CORPORATION OF THE COUNTY OF VICTORIA
WARDEN....
CLERK....

IN WITNESS WHEREOF the Owner herein has hereunto set his hand and seal
In the Presence of....

DRAFT AGREEMENT NO. 2

On the cover of the agreement

DATED:
THE CORPORATION OF THE COUNTY
OF VICTORIA
and....
AGREEMENT
FULTON, McQUARRIE, HILL, WALDEN
SWAIN & CHESTER
Barristers & Solicitors
14 Lindsay Street North
LINDSAY ONTARIO

The text of the agreement

THIS AGREEMENT made this.... day of...., 19....
BETWEEN:
THE CORPORATION OF THE COUNTY OF VICTORIA
hereinafter called the County
and
hereinafter called the Owner

Subject to the conditions hereinafter provided the Parties hereto DO HEREBY AGREE AS FOL-
LOWS:

1. The County will purchase from the Owner, certain gravel in the Owner's lands, which lands are herein described in Schedule A to this Agreement.
2. Upon removal of the gravel whether for crushing purposes or for pit run use, the County will pay the Owner the sum of\$ per cubic yard in the first year of the Agreement. In the second and each subsequent year the County will pay the Owner the same price per cubic yard of gravel removed (or stockpiled) with such increase or decrease in the price as may be determined by the percentage increase or decrease in the rate of inflation (or deflation) as reported by Statistics Canada on the 1st day of May in each year, for the year previous.
3. Payment to the Owner shall be made each thirty days and shall be in accordance with records to be kept by the County Engineering staff, copies of which shall be delivered to the Owner every thirty days together with the County's settlement cheque for the same accounting period.
4. This Agreement shall continue in force for a period of years, with right of renewal for a further period of years upon such terms and conditions as the Parties may agree.

Appendix 8

5. If circumstances should be such that the County does not require gravel from the Owner's premises as described herein, in any year or years, this Agreement shall nevertheless continue in force for its full term and for the purpose of computing the term of the Agreement, time shall run continuously for....years, whether or not gravel is taken in any year.

6. Upon the execution of the Agreement, the County will, as soon as reasonably practicable, prepare and file an application in the name of the County for a pit licence in accordance with the provisions of The Pits and Quarries Control Act, 1971 and the regulations thereunder.

The County will pay all appropriate costs in the preparation and filing of the application and without limiting the generality of this clause, such costs shall include all engineering costs, administrative costs, any fencing costs, reasonable interest charges on costs paid or absorbed by the County and any costs incurred from time to time pursuant to any work order or other requirements laid down by the Ministry as a condition to continuation of the licence or in accordance with the licence.

7. The total County cost of the pit licence including costs of maintaining the licence from time to time, shall be spread over the first five years of the Agreement and shall be paid by the application of such rate per cubic yard as will discharge the debt within a five year term based upon the estimated yardage of gravel to be extracted over the five year term aforesaid—such yardage rate to be determined and paid from the proceeds payable on each thirty day settlement, (and the amount so paid or deducted to be accumulated by the Treasurer of the County in a special account).

Any balance payable at the end of the first five years will be paid to the County in full or if the Owner so requires may be spread over the remaining term of the Agreement as above provided with final settlement to be made in the final year of the Agreement.

8. The Owner will restrict the sale of gravel to third parties to cubic yards per year, saving as to any member municipality in the County of Victoria, and in the event of any such sales whether to third parties on a restricted basis or to any other municipality, the Owner will pay to the County in the same manner as a royalty payment the sum of\$ per cubic yard so removed and such monies shall be credited to the County cost of the pit licence and deposited to the special account to the credit of the Owner as above provided.

(In the event that this Agreement shall apply to a pit outside the County of Victoria, the priority herein provided for municipalities shall, in that circumstance, extend to the member municipalities in the County in which the pit is located.)

9. In the event that an application by the County to the Ministry of Natural Resources for a pit licence, as herein provided, should be denied, this Agreement shall be absolutely null and void.

10. In the event of any dispute between the Parties under this Agreement which cannot be satisfactorily resolved by mutual agreement, the same, at the instance of either party, may be referred to a Board of Arbitration comprising three persons, one to be chosen by the County, one by the Owner and the third, the chairman of the Board, to be the presiding County Court Judge of the County of Victoria, as persona designata, and a decision of the majority of the Board upon any issue shall be the decision of the Board.

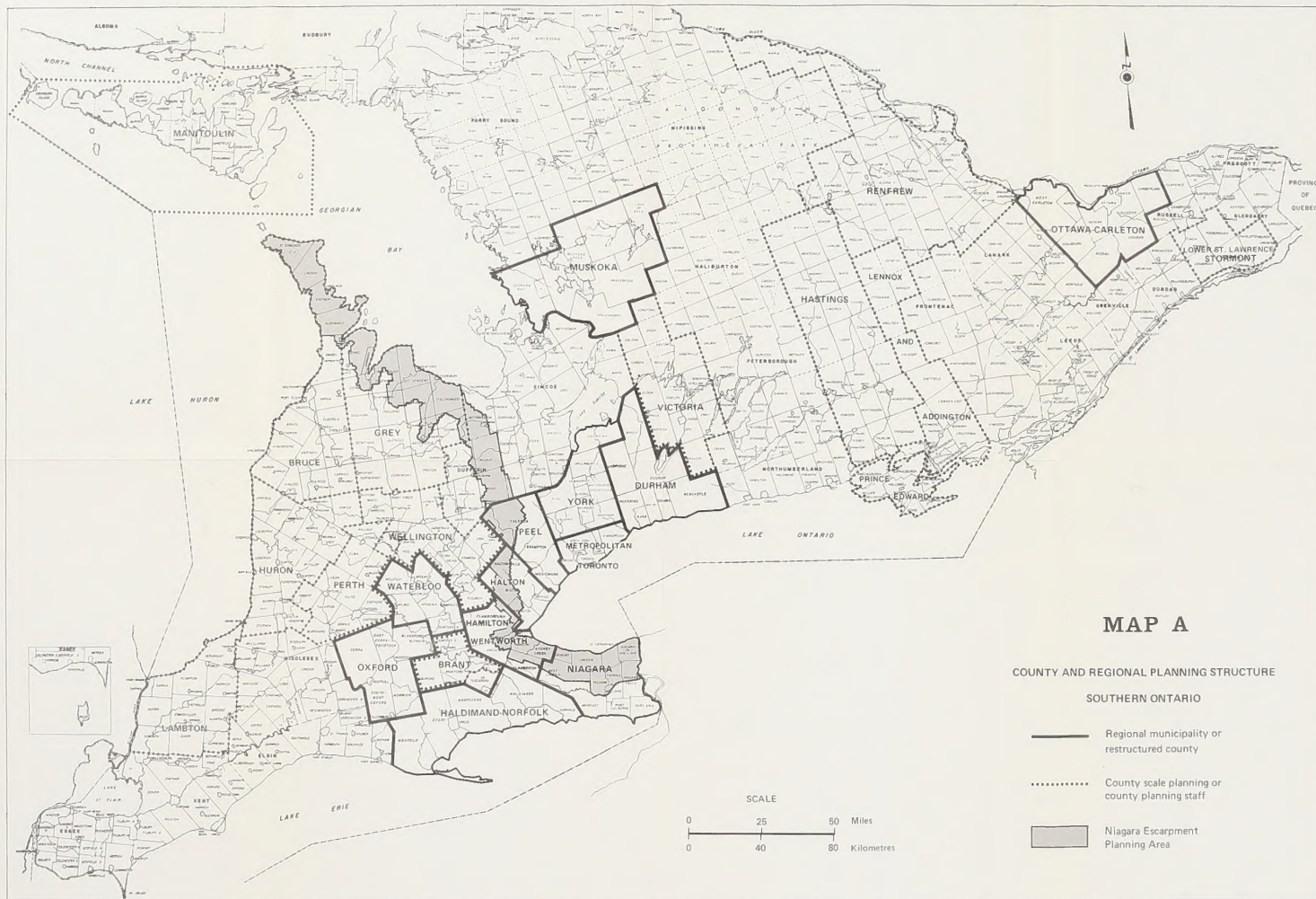
11. In all other respects this Agreement shall be subject to the provisions of The Pits and Quarries Control Act, 1971 and all amendments thereto and all regulations passed thereunder.

12. This Agreement shall be binding upon the Parties hereto during the term expressed in the Agreement and upon the heirs, executors, administrators and assigns of the Owner.

WITNESS THE CORPORATE SEAL OF THE COUNTY OF VICTORIA
duly attested by the proper officers in that behalf.

THE CORPORATION OF THE COUNTY OF VICTORIA
WARDEN....
CLERK....

IN WITNESS WHEREOF the Owner herein has hereunto set his hand and seal.
In the Presence Of...







3 1761 11548263 0